

Digital Public Financial Management: The Mediating Role of Transparency and Accountability in Local Government Performance

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Abstract

This study examines the explanatory relationships among Digital Public Financial Management (DPFM), transparency, accountability, and local government performance, with transparency and accountability modeled as parallel mediators. Using a cross-sectional quantitative design, data were obtained from 312 local government officials involved in financial management across multiple local government institutions and analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM). DPFM was positively associated with transparency ($\beta = 0.756, p < .001$), accountability ($\beta = 0.783, p < .001$), and local government performance ($\beta = 0.241, p = .001$). Transparency ($\beta = 0.284, p < .001$) and accountability ($\beta = 0.391, p < .001$) were also positively associated with performance. The specific indirect effects through transparency ($\beta = 0.215, p < .001$) and accountability ($\beta = 0.306, p < .001$) were significant, supporting parallel mediation. Because the design is cross-sectional and based on self-reported survey data, the findings are interpreted as explanatory associations rather than causal effects. The study contributes an integrated model showing how digital financial management is associated with local government performance through two governance mechanisms, while good governance is retained as the broader theoretical framing rather than a separately estimated construct.

ARTICLE HISTORY

Received : 17 September 2025

Revised : 27 Oktober 2025

Accepted : 17 November 2025

KEYWORDS

Digital Public Financial Management; Transparency; Accountability; Local Government Performance; Digital Transformation; PLS-SEM

PUBLISHER'S NOTE

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Introduction

The digital transformation of government has shifted from the peripheral automation of administrative routines toward the redesign of institutional processes, information architectures, accountability relationships, and public-value creation. Governments are increasingly expected to manage public resources in an environment characterized by fiscal pressure, growing citizen expectations, complex intergovernmental relations, and heightened demands for transparency and measurable performance. Consequently, digital technologies are no longer regarded merely as instruments for increasing administrative efficiency; rather, they have become integral components of contemporary public-sector governance. Digital transformation may alter organizational routines, decision structures, interdepartmental coordination, information flows, and relationships between governments and their stakeholders (Gil-Garcia et al., 2018; Haug et al., 2024; Mergel et al., 2019; Tangi et al., 2021). Recent scholarship further emphasizes that genuine digital transformation extends beyond converting analogue processes into electronic formats because its institutional significance depends on whether technology generates substantive organizational and governance changes (Haug et al., 2024; Verhoef et al., 2021; Vial, 2019).

This transformation is particularly consequential in public financial management, where the quality, timeliness, traceability, and accessibility of financial information directly affect governmental decision making and public oversight. Digital Public Financial Management (DPFM) may be understood as the systematic integration of digital technologies, interconnected information systems, standardized data, and digitally enabled processes across budgeting, treasury management, accounting, procurement, reporting, auditing, and fiscal monitoring. From this perspective, DPFM involves substantially more than installing a financial application. It requires the alignment of functional processes, technological architecture, data governance, institutional arrangements, and managerial capacity. The International Monetary Fund's Digital Solutions Guidelines for Public Financial Management similarly conceptualize digital PFM through functional, IT-architectural, and governance-and-management dimensions and emphasize data quality, interoperability, transparency, and institutional capability as central conditions for effective digital transformation (Rivero del Paso et al., 2023). This position is consistent with wider digital-government scholarship showing that technological investments generate sustainable organizational outcomes only when accompanied by organizational change, managerial support, appropriate competencies, and coherent institutional arrangements (Haug et al., 2024; Mergel et al., 2019; Tangi et al., 2021).

The relevance of DPFM becomes even more pronounced at the local-government level. Decentralized public administrations are simultaneously responsible for managing substantial public resources, implementing public programs, providing essential services, satisfying regulatory requirements, and demonstrating their performance to citizens and higher levels of government. Digital systems potentially allow local governments to reduce fragmented financial processes, improve the consistency of fiscal data, strengthen transaction traceability, accelerate reporting, and provide decision makers with more timely information. Nevertheless, the adoption of digital systems does not automatically produce superior governance or performance. Research on public-sector digitalization repeatedly demonstrates that technological implementation may be constrained by fragmented institutional structures, limited interoperability, insufficient organizational capability, managerial resistance, unequal digital capacity, and weak integration between technology and administrative processes (Haug et al., 2024; Tangi et al., 2021; Wahyuni et al., 2024). Thus, the analytical question is no longer simply whether governments adopt digital financial systems, but through which governance mechanisms those systems become associated with improved organizational performance.

The theoretical logic of the present study is positioned at the intersection of Digital Governance, accountability or agency reasoning, and Public Value perspectives. Digital Governance emphasizes that technology interacts with organizational structures, administrative processes, institutional rules, public managers, and external stakeholders rather than generating transformation independently. Accordingly, government digitalization should be evaluated through its capacity to reshape information flows, coordination, service arrangements, and governance practices (Gil-Garcia et al., 2018; Mergel et al., 2019; Tangi et al., 2021). Accountability and agency reasoning further suggests that information asymmetry between public officials, oversight institutions, political principals, and citizens can weaken monitoring and answerability. Digital financial systems may mitigate such asymmetry by producing more standardized, timely, traceable, and accessible information; nevertheless, information availability produces meaningful accountability only when institutional actors can use that information to scrutinize conduct and require justification for

decisions (Agostino, Saliterer, et al., 2022; Bovens, 2007; Busuioc, 2021). Finally, Public Value Theory shifts attention beyond internal efficiency toward the broader value generated by government activities, including improved administration, service quality, openness, trust, and societal outcomes (Gil-Garcia et al., 2018; Panagiotopoulos et al., 2019; Twizeyimana & Andersson, 2019). Together, these perspectives imply that the organizational value of DPFM should not be presumed to emerge directly from technological adoption; it may instead be generated through governance mechanisms that convert digital capabilities into transparent and accountable administrative practices.

Transparency represents one such mechanism. Digital systems can increase transparency by improving the availability, accessibility, timeliness, consistency, and traceability of public-sector information. Yet contemporary literature cautions against equating digitization with substantive transparency. Matheus et al. (2021) demonstrate that digital transparency requires deliberate organizational and design arrangements and cannot be achieved merely by publishing government information online. Similarly, research on open-government data shows that formal information disclosure can be undermined by implementation barriers, incomplete compliance, poor data quality, or institutional resistance (Huang et al., 2020; Michener & Nichter, 2022; Žuffová, 2020). Transparency therefore constitutes an institutional capability through which digital financial information becomes understandable and usable for internal managers, auditors, representative institutions, citizens, and other stakeholders. When DPFM increases the visibility of budgeting, expenditure, reporting, and financial-control processes, it may reduce informational opacity and create stronger conditions for informed monitoring and organizational learning. However, such outcomes depend upon whether digital information is substantively accessible and decision-relevant rather than merely technically available.

Accountability constitutes a related but conceptually distinct pathway. Whereas transparency concerns the visibility and accessibility of governmental information and processes, accountability requires actors to explain and justify conduct and potentially face consequences arising from evaluation or oversight. Digitalization can support accountability by creating transaction histories, electronic audit trails, standardized records, performance data, and traceable decision processes. Nevertheless, accountability cannot be reduced to a technical attribute of an information system. Agostino, Saliterer, et al. (2022) argue that digitalization transforms how public-sector data are produced and consumed and, consequently, reshapes accountability roles and relationships. Agostino, Bracci, et al. (2022) similarly demonstrate that digital information generates both opportunities and complexities for performance management, transparency, auditing, and accountability. Busuioc (2021), although focusing specifically on algorithmic systems, reinforces the broader governance principle that digital decision processes require identifiable accountability relationships rather than assuming that technological traceability alone ensures answerability. Therefore, DPFM is theoretically expected to strengthen organizational performance to the extent that its digital capabilities are embedded within functioning mechanisms of responsibility, monitoring, justification, and control.

Transparency and accountability should therefore not be treated as interchangeable constructs. Greater transparency can improve the informational conditions under which accountability occurs, but information disclosure does not necessarily ensure that responsible actors are questioned, evaluated, or sanctioned. Conversely, formal accountability mechanisms may exist without sufficient transparency to permit meaningful scrutiny. This distinction is especially

important in digital government because the expansion of digital data can create the appearance of openness while leaving underlying organizational decision structures unchanged. The literature consequently emphasizes the need to consider institutional and organizational mechanisms connecting digital systems with substantive governance outcomes (Agostino, Saliterer, et al., 2022; Haug et al., 2024; Matheus et al., 2021). Treating transparency and accountability as separate but complementary mechanisms therefore provides a more precise framework for explaining how DPFM may become associated with public-sector performance.

The performance implications of digitalization are similarly multidimensional. Public-sector performance encompasses the ability of governmental organizations to use resources effectively, execute programs efficiently, produce reliable administrative outputs, respond to stakeholders, and realize intended public outcomes. Digital technologies may enhance these dimensions by lowering information-processing costs, improving coordination, increasing data availability, supporting faster decisions, and enabling more consistent performance monitoring. However, recent evidence indicates that the relationship between digitalization and governmental performance varies substantially across institutional settings. Zhu et al. (2024), for example, demonstrate considerable spatial and institutional variation in digital-government service efficiency across Chinese cities, indicating that digital capacity must be interpreted alongside fiscal, administrative, and contextual conditions. Public-sector transformation research likewise concludes that digital technologies generally produce incremental changes in organizational processes before generating broader transformative effects (Haug et al., 2024). Accordingly, performance improvement should be theoretically modeled as the result of mechanisms through which digital systems alter organizational behavior rather than as an automatic consequence of technology acquisition.

Evidence from Indonesia makes this analytical distinction particularly salient. Pribadi et al. (2024), using data from employees in four Indonesian local governments, found that transparency and accountability were significantly associated with digital-government service implementation, illustrating the close institutional relationship among digital governance, transparency, and accountability. Wahyuni et al. (2024) likewise identified technology, transparency, and institutional collaboration as interdependent challenges within Indonesian digital-government implementation. Virnandes et al. (2024) demonstrated that transparency and governance capabilities contribute to the capacity of digital-government transformation to generate public trust. More recently, Tahir et al. (2025) examined whether digital transformation can improve transparency and accountability in Indonesian public governance. Collectively, these studies show that transparency and accountability are central to the Indonesian digital-governance agenda. However, their analytical focus differs from examining whether DPFM contributes to local-government organizational performance through separate transparency and accountability mechanisms.

Research specifically addressing Indonesian subnational financial administration similarly indicates that technology alone does not resolve governance problems. Studies of e-budgeting, local-government information systems, and regional digital transformation suggest improvements in reporting, internal control, organizational capability, or government performance, while simultaneously identifying disparities in technical capacity and institutional readiness. Setyawan and Gamayuni (2020), for instance, examined financial-reporting quality and internal control before and after e-budgeting implementation in an Indonesian local-government setting, whereas Sulistiyo et al. (2023) linked digital-transformation capability with government performance in North Maluku. Such

findings are important, but the dominant empirical logic remains focused on direct relationships, implementation effectiveness, specific financial-reporting outcomes, or isolated mediating and moderating mechanisms rather than an integrated DPFM-to-performance framework incorporating two parallel governance pathways.

Accordingly, a substantive research gap remains. First, although digital-government studies increasingly acknowledge transparency, accountability, performance, and public value, these constructs are frequently examined separately or positioned as parallel consequences of digital transformation rather than as mechanisms connecting DPFM with organizational performance. Second, the public-sector accounting literature has extensively discussed how digitalization reshapes accounting and accountability, yet it continues to call for stronger empirical evidence concerning the organizational consequences and mechanisms through which digital data influence public-sector outcomes (Agostino, Bracci, et al., 2022; Agostino, Saliterer, et al., 2022). Third, evidence from Indonesian local governments has established relationships among digital government, transparency, accountability, institutional capabilities, and performance, but it has not sufficiently established whether transparency and accountability constitute distinct simultaneous transmission mechanisms between DPFM and local-government performance (Pribadi et al., 2024; Sulistiyo et al., 2023; Tahir et al., 2025). The gap is therefore not simply the absence of studies demonstrating that digitalization matters; rather, it concerns insufficient mechanism-based empirical explanation of how DPFM is associated with performance in decentralized local-government organizations.

The principal novelty of this study consequently lies in its parallel-mediation model. Instead of assuming that DPFM directly generates good governance or superior performance, the proposed framework differentiates the direct association between DPFM and local-government performance from two specific indirect pathways operating through transparency and accountability. This specification is theoretically important because transparency and accountability are conceptually related but institutionally distinct: transparency increases informational visibility, whereas accountability converts information and oversight into answerability and control. Modeling both mediators simultaneously allows the study to determine whether DPFM is associated with performance through one, both, or neither of these governance mechanisms while controlling for their shared explanatory space. In this framework, good governance serves as the broader interpretive context rather than as an additional latent construct that is not directly measured. Such specification reduces conceptual overextension and aligns theoretical claims with the constructs actually estimated in the structural model.

Accordingly, this study aims to examine the relationship between Digital Public Financial Management and local-government performance and to determine whether transparency and accountability mediate that relationship as distinct parallel governance mechanisms. More specifically, the study assesses the direct association between DPFM and organizational performance, evaluates the effects of DPFM on transparency and accountability, examines the relationships of transparency and accountability with performance, and tests the specific indirect effects of DPFM on performance through each mediator. By integrating Digital Governance, accountability or agency reasoning, and Public Value perspectives within a single empirically testable model, the study seeks to advance the literature from a technology-adoption explanation toward a mechanism-oriented understanding of digital public financial governance. Its contribution is therefore theoretically bounded and empirically explicit: it explains not merely whether digital

financial transformation is associated with better local-government performance, but through which institutional governance pathways that relationship is transmitted.

Literature Review

Digital Public Financial Management

Digital Public Financial Management (DPFM) refers to the integration of digital technologies into public financial management processes to enhance efficiency, transparency, accountability, and decision-making quality within government institutions. The concept extends beyond the simple digitization of financial records and encompasses the transformation of budgeting, accounting, procurement, treasury management, auditing, reporting, and financial oversight into interconnected digital ecosystems. Through digital platforms, governments can automate financial processes, improve data accuracy, strengthen internal controls, and provide stakeholders with timely access to financial information.

Recent developments in public administration have positioned DPFM as a key component of digital government transformation. According to the Organisation for Economic Co-operation and Development (OECD, 2024), digital public financial systems facilitate evidence-based policymaking by enabling governments to collect, process, and analyze financial data in real time. Such capabilities support more responsive governance and improve resource allocation efficiency. Digital technologies also reduce bureaucratic complexity and administrative costs while increasing operational effectiveness across public institutions.

From a governance perspective, DPFM contributes to reducing information asymmetry between government institutions and citizens. Transparency in budget formulation, expenditure tracking, procurement processes, and financial reporting becomes more accessible through digital platforms. Consequently, digitalization enhances public oversight and strengthens institutional legitimacy. Research conducted by Rivero del Paso et al. (2023) explain that digital budgeting systems significantly improve fiscal transparency and reduce opportunities for corruption by increasing the traceability of public expenditures.

The theoretical foundation of DPFM can be explained through Digital Governance Theory, which argues that technology serves as an enabler of governance transformation by improving information flows, stakeholder participation, and administrative accountability (Mergel et al., 2019). Within this framework, digital technologies are not merely technical tools but strategic mechanisms that reshape institutional behavior and governance structures. Effective implementation of DPFM therefore requires organizational readiness, leadership commitment, digital infrastructure, and supportive regulatory environments.

Several indicators are commonly used to measure DPFM effectiveness. These include digital budget management, electronic procurement systems, integrated financial information systems, digital auditing mechanisms, financial data accessibility, real-time reporting capabilities, and interoperability among governmental databases (OECD, 2024). The successful implementation of these dimensions is expected to generate positive governance outcomes, particularly in terms of transparency, accountability, and organizational performance.

Transparency

Transparency is a fundamental principle of democratic governance and public sector management. It refers to the extent to which government institutions disclose relevant, accurate, timely, and

accessible information regarding their activities, decisions, and use of public resources (Cucciniello et al., 2017). In public financial management, transparency enables citizens, stakeholders, and oversight institutions to monitor government actions and evaluate whether public funds are managed responsibly.

Transparency has gained increasing attention as governments seek to improve public trust and institutional legitimacy. The Open Government Partnership emphasizes that transparent financial management contributes to reducing corruption risks, improving citizen engagement, and strengthening democratic accountability. Public access to budget information, procurement records, expenditure reports, and audit findings enables stakeholders to assess government performance more effectively.

According to Good Governance Theory, transparency functions as a mechanism that reduces information asymmetry between public officials and citizens (OECD, 2024). When information is openly available, opportunities for opportunistic behavior, corruption, and resource misallocation decrease significantly. Transparency also facilitates informed public participation in governance processes, thereby strengthening democratic oversight.

The relationship between digitalization and transparency has become increasingly prominent in recent years. Digital financial management systems allow governments to publish financial information online, provide real-time expenditure data, and establish interactive platforms for citizen monitoring. Research by Cucciniello et al. (2017) demonstrate that digital government initiatives significantly enhance fiscal transparency by increasing the accessibility and usability of financial information.

Transparency in this study is operationalized through several dimensions, including information accessibility, financial disclosure quality, timeliness of reporting, budget openness, public access to financial information, and clarity of government financial communication. These indicators reflect the extent to which digital financial management systems facilitate openness and information sharing within local governments.

Accountability

Accountability represents the obligation of public officials and institutions to explain, justify, and take responsibility for their actions, decisions, and use of public resources. It is considered one of the core pillars of good governance because it ensures that government actors remain answerable to citizens and oversight bodies (Bovens, 2007). Accountability mechanisms help prevent misuse of public resources while promoting ethical and responsible governance practices.

In the context of public financial management, accountability involves accurate financial reporting, compliance with regulations, effective internal control systems, and responsiveness to audit findings. Public institutions are expected to demonstrate that resources have been utilized efficiently, effectively, and in accordance with established legal and ethical standards. Accountability therefore serves as a safeguard against corruption, fraud, and financial mismanagement.

Agency Theory provides an important explanation for accountability in public administration. The theory suggests that public officials (agents) manage resources on behalf of citizens (principals), creating potential agency problems due to information asymmetry and divergent interests (Jensen & Meckling, 1976). Accountability mechanisms reduce these problems by requiring agents to disclose information and justify their actions. Digital financial

management systems can strengthen accountability by increasing monitoring capabilities and improving information availability.

Recent studies indicate that digital technologies significantly contribute to accountability enhancement. Electronic financial management systems enable real-time monitoring, automated audit trails, transaction traceability, and performance tracking mechanisms. Consistent with Ferry et al. (2023), digital financial platforms improve accountability by creating more transparent and verifiable records of government activities.

The measurement of accountability in this study includes dimensions such as financial responsibility, reporting accuracy, audit compliance, responsiveness to stakeholder concerns, internal control effectiveness, and performance accountability. These dimensions capture the extent to which local governments demonstrate responsible and answerable financial management practices.

Good Governance as Theoretical Framing

Good governance has emerged as a central concept in public administration and development studies. The World Bank defines good governance as the manner in which power is exercised in the management of public resources for social and economic development. It encompasses principles such as transparency, accountability, participation, rule of law, responsiveness, effectiveness, efficiency, and equity.

The concept gained prominence as governments worldwide sought to improve institutional performance and public trust. Good governance emphasizes not only the outcomes of government actions but also the processes through which decisions are made and implemented. Effective governance requires institutions that are transparent, accountable, participatory, and responsive to citizens' needs (OECD, 2024).

Transparency and accountability are often regarded as the two most critical pillars of good governance. Transparency provides citizens with access to information, while accountability ensures that public officials are answerable for their actions. Together, these principles create mechanisms that enhance public trust and strengthen institutional legitimacy. Research consistently demonstrates positive relationships between transparency, accountability, and governance quality (Bovens, 2007; Cucciniello et al., 2017).

Digital transformation has increasingly been recognized as a catalyst for good governance. Digital platforms facilitate citizen engagement, improve information accessibility, strengthen oversight mechanisms, and support evidence-based decision-making. According to OECD (2024), digital government initiatives contribute significantly to governance modernization by enhancing transparency, accountability, and service delivery effectiveness.

In this study, good governance is not specified as a separate latent construct in the PLS-SEM model. Instead, it provides a normative and theoretical frame for interpreting transparency and accountability as governance mechanisms associated with local government performance. Accordingly, empirical claims are restricted to the estimated relationships among DPFM, transparency, accountability, and performance.

Local Government Performance

Local government performance refers to the extent to which local authorities achieve their organizational objectives, deliver quality public services, manage resources efficiently, and satisfy stakeholder expectations. Performance measurement has become increasingly important in

decentralized governance systems where local governments possess significant autonomy and responsibility for public service delivery.

The New Public Management (NPM) perspective emphasizes the importance of performance measurement, efficiency, effectiveness, and results-oriented governance. Under this approach, local governments are expected to operate with greater accountability and responsiveness while maximizing public value creation. Performance is therefore assessed not only in terms of financial outcomes but also through service quality, citizen satisfaction, innovation, and governance effectiveness.

Digital technologies have transformed performance management practices within local governments. Integrated information systems enable real-time performance monitoring, data analytics, predictive decision-making, and evidence-based policy development. Research on digital transformation and open government suggests that digital governance initiatives significantly improve organizational performance by enhancing information quality and administrative efficiency.

The Public Value Theory developed by Moore (1995) provides an additional theoretical lens for understanding local government performance. The theory argues that public organizations should focus on creating value for citizens through effective service delivery, trust-building, and social outcomes. Digital public financial management contributes to public value creation by improving transparency, accountability, and resource utilization.

Local government performance in this study is measured through dimensions such as service effectiveness, administrative efficiency, financial performance, stakeholder satisfaction, policy implementation quality, and organizational responsiveness. These indicators reflect the overall capacity of local governments to fulfill their mandates and deliver public value.

Hypothesis Development

Based on Digital Governance Theory, Agency Theory, and Public Value Theory, the model specifies direct relationships from DPFM to transparency, accountability, and local government performance, together with two parallel indirect pathways from DPFM to performance through transparency and accountability. Good governance informs interpretation of these pathways but is not modeled as a separate construct.

H1: Digital Public Financial Management positively influences transparency.

H2: Digital Public Financial Management positively influences accountability.

H3: Transparency positively influences local government performance.

H4: Accountability positively influences local government performance.

H5: Digital Public Financial Management positively influences local government performance.

H6: Transparency mediates the relationship between Digital Public Financial Management and local government performance.

H7: Accountability mediates the relationship between Digital Public Financial Management and local government performance.

Method

Research Design

This study employed a quantitative explanatory design to examine associations among Digital Public Financial Management (DPFM), transparency, accountability, and local government performance, including the indirect relationships through transparency and accountability. Because the data were

cross-sectional and self-reported, the design supports theory-based explanatory modeling but does not establish temporal or causal identification.

A quantitative design was used to test the proposed latent-variable relationships and estimate direct and indirect effects. PLS-SEM was selected because the study emphasized prediction and explanation of variance in endogenous constructs, included multiple latent variables and parallel mediation paths, and required simultaneous assessment of the measurement and structural models (Hair et al., 2022).

Data were collected through a cross-sectional survey at a single point in time. The design captured respondents' perceptions of digital financial management practices, transparency, accountability, and organizational performance within local government institutions.

The conceptual model is grounded in Digital Governance Theory, Good Governance Theory, Agency Theory, and Public Value Theory. These theoretical perspectives collectively explain how digital financial management systems improve governance outcomes through enhanced transparency and accountability mechanisms.

The study framework proposes that Digital Public Financial Management influences local government performance directly and indirectly through transparency and accountability. Consequently, mediation analysis becomes a central component of the research model.

Research Setting and Population

The research was conducted in local government institutions responsible for public financial management and service delivery, including financial management agencies, inspectorates, planning agencies, revenue offices, and other units directly involved in financial administration. The available manuscript records do not identify the administrative region or fieldwork dates; these details should be supplied from the original study documentation for full reproducibility.

The target population comprised civil servants and government employees involved in financial management, including financial managers, auditors, accounting officers, planning officers, and administrators who used digital public financial management systems. Respondents were eligible when their duties provided direct knowledge of financial digitalization and governance practices.

Eligibility required at least one year of employment in the institution and direct experience with digital financial management systems. These criteria were applied to ensure that respondents could meaningfully assess the constructs included in the model.

The study focuses on local governments because fiscal decentralization has significantly increased their responsibilities for budget management, public service delivery, and governance accountability. Consequently, local governments provide an appropriate context for examining the effectiveness of digital financial reforms.

The unit of analysis is individual public sector employees who interact directly with digital public financial management systems and participate in governance processes within local government organizations.

Sampling Technique and Sample Size

Purposive sampling was used because the study required respondents with direct involvement in digital public financial management. This nonprobability approach improves informational relevance but limits population-level representativeness and therefore requires caution when generalizing the findings beyond the participating institutions.

The inclusion criteria are as follows:

1. Civil servants or government employees involved in financial management activities.
2. Users of digital public financial management systems.
3. Employees with a minimum of one year of working experience.
4. Personnel involved in budgeting, accounting, auditing, reporting, or financial supervision activities.

Sample adequacy was evaluated against statistical-power considerations rather than relying only on the ten-times heuristic. As a transparent benchmark, a multiple-regression power calculation with three predictors, a medium effect size ($f^2 = 0.15$), $\alpha = .05$, and 95% power requires approximately 119 observations (Faul et al., 2009). The achieved sample of 312 therefore exceeded this benchmark and provided adequate power for detecting effects of practical interest. Because this benchmark was reconstructed for reporting, it should not be represented as a preregistered a priori calculation unless the original study records confirm that it was conducted before data collection.

A total of 312 valid responses were analyzed. This achieved sample exceeded the benchmark above and was used for the reported PLS-SEM estimates. The manuscript should additionally report the number of invitations distributed and the resulting response rate when those administrative records are available.

Instrument Development

Data were collected using a structured questionnaire developed from the conceptual dimensions used in prior governance and digital-government literature. DPFM indicators were informed by digital PFM and digital-government frameworks (OECD, 2024; Rivero del Paso et al., 2023), transparency by government-transparency research (Cucciniello et al., 2017), accountability by public-accountability literature (Bovens, 2007), and local government performance by public-value and organizational-performance concepts (Moore, 1995). The constructs were modeled reflectively in the reported PLS-SEM assessment.

The questionnaire consists of two sections. The first section gathers demographic information such as gender, age, educational background, job position, and years of experience. The second section contains measurement items related to the research variables.

Responses are measured using a five-point Likert scale ranging from:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Responses were recorded on a five-point Likert scale. Before field administration, the instrument was reviewed for clarity and contextual relevance. The manuscript, however, does not contain the item-level questionnaire, exact number of items per construct, translation procedure, expert-panel composition, or pilot-test statistics; these details should be inserted from the original instrument documentation rather than reconstructed retrospectively.

Data Collection Procedures

Data were collected through online and offline survey modes after permission from the relevant local government authorities. Respondents received information about the study purpose, voluntary participation, confidentiality, and anonymity. No personally identifiable information was reported,

and the analyses used aggregated responses. Because all substantive variables were obtained from the same respondents at one time point, common-method variance remains a potential source of bias.

A statistical common-method diagnostic should be reported from the original dataset before final submission. For PLS-SEM, a full-collinearity VIF assessment is one established option; values below the recommended threshold can be used as supporting evidence that common-method bias is unlikely to dominate the estimates (Kock, 2015). No diagnostic value is inserted here because the raw dataset was not provided with the reviewed manuscript.

Partial Least Squares Structural Equation Modeling (PLS-SEM) was conducted with SmartPLS 4. The method was chosen for its variance-explanation and prediction orientation, its suitability for models containing multiple latent constructs and indirect paths, and its ability to estimate the measurement and structural models simultaneously. This rationale is methodological rather than software-driven and follows contemporary PLS-SEM guidance (Hair et al., 2022).

The analysis proceeded in two stages. First, the reflective measurement model was assessed using indicator loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), and discriminant validity. Indicator loadings of approximately .70 or higher, reliability coefficients of at least .70, and AVE values above .50 were used as benchmarks (Hair et al., 2022). Discriminant validity was evaluated primarily with the heterotrait-monotrait ratio (HTMT), following Henseler et al. (2015).

Second, the structural model was evaluated using path coefficients, bootstrapped significance tests, R^2 , collinearity diagnostics, effect sizes (f^2), and predictive relevance (Q^2). The reviewed manuscript reports path coefficients and R^2 but does not provide the complete f^2 , Q^2 , VIF, confidence-interval, or out-of-sample predictive statistics promised by the original Methods; these values should be added from the SmartPLS output rather than inferred or fabricated.

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with a two-stage analytical procedure comprising the measurement model (outer model) assessment and the structural model (inner model) assessment. The measurement model was first evaluated to establish the reliability and validity of the latent constructs. Indicator reliability was assessed by examining factor loadings, with values greater than

0.70 indicating acceptable reliability. Internal consistency reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR), both of which were required to exceed the recommended threshold of 0.70. Convergent validity was assessed through the Average Variance Extracted (AVE), with values greater than 0.50 demonstrating that each construct explained more than half of the variance of its indicators. Discriminant validity was examined using both the Fornell-Larcker Criterion and the Heterotrait-Monotrait Ratio (HTMT) to ensure that each construct was empirically distinct from the others.

The two specific indirect effects were evaluated with nonparametric bootstrapping, an approach appropriate for mediation because the sampling distribution of an indirect effect need not be normal (Preacher & Hayes, 2008). The model treated transparency and accountability as parallel mediators: DPFM → Transparency → Local Government Performance and DPFM → Accountability → Local Government Performance.

An indirect effect was interpreted as statistically significant when its bootstrapped p-value was below .05 and, where available, the 95% bootstrap confidence interval excluded zero. The mediation

interpretation focused on each specific indirect effect; the summed total indirect effect was treated only as an aggregate quantity and not as evidence of serial mediation.

Two mediation pathways were tested. The first examined DPFM → Transparency → Local Government Performance, and the second examined DPFM → Accountability → Local Government Performance. No serial Transparency → Accountability pathway was specified or interpreted because the reported structural results did not include the additional path required for a serial-mediation model.

The significance of the mediation effects is determined using three established statistical criteria. First, the t-statistic must exceed 1.96, indicating statistical significance at the 5% significance level. Second, the p-value must be less than 0.05, demonstrating that the indirect effect is unlikely to have occurred by chance. Third, the 95% bias-corrected confidence interval for the indirect effect must not include zero, confirming the existence of a statistically significant mediation effect. Based on these criteria, the analysis distinguishes between significant and non-significant indirect effects and enables the identification of the type of mediation occurring within the structural model, including complementary (partial), indirect-only (full), competitive, or non-mediation, following contemporary mediation assessment guidelines in PLS-SEM.

Three mediation pathways are tested to evaluate the mechanisms through which DPFM influences organizational outcomes in local government. The first pathway examines the indirect effect of DPFM → Transparency → Local Government Performance, assessing whether improvements in digital financial management enhance organizational performance through increased financial transparency. The second pathway investigates DPFM → Accountability → Local Government Performance, evaluating whether stronger accountability mechanisms transmit the effects of digital financial management to performance outcomes. The third pathway analyzes the combined mediation mechanism of DPFM → Transparency → Accountability → Local Government Performance, examining whether transparency sequentially strengthens accountability, which subsequently improves local government performance. Collectively, these mediation analyses provide empirical evidence on whether transparency and accountability function as complementary governance mechanisms through which digital public financial management contributes to enhanced organizational performance, improved public service delivery, and the realization of good governance principles in local government institutions.

Ethical Considerations

The study adheres to ethical principles of social science research. Participation is voluntary, informed consent is obtained from all respondents, and confidentiality is maintained throughout the study. Respondents are assured that the collected information is used solely for academic purposes. Data are reported in aggregate form to prevent identification of individual participants or institutions. By maintaining ethical integrity, the study seeks to ensure the credibility, reliability, and trustworthiness of its findings.

Result and Discussion

Respondent Profile

A total of 312 valid responses were collected from local government officials involved in financial management activities across various local government institutions. The respondents consisted of financial officers, budget administrators, internal auditors, accounting personnel, planning

officers, and senior administrators who regularly utilized digital public financial management systems.

The demographic profile indicates that respondents had relevant functional experience for evaluating digital public financial management practices. However, respondent experience and functional diversity do not establish statistical representativeness because purposive sampling was used. Generalization should therefore be limited to comparable institutional settings unless the achieved sample can be benchmarked against the target population and institution-level distribution.

The majority of respondents reported having more than five years of experience in local government financial management, indicating sufficient familiarity with budgeting, accounting, procurement, auditing, and financial reporting processes. Furthermore, approximately 85% of respondents indicated regular interaction with digital financial management systems such as e-budgeting, e-planning, e-procurement, and integrated financial information systems.

The demographic profile suggests that respondents possess adequate knowledge and practical experience to evaluate the effectiveness of digital public financial management practices and their implications for governance and organizational performance. The diversity of respondents across functional areas strengthens the representativeness of the findings and provides a comprehensive perspective on digital financial management implementation within local governments. The measurement model was evaluated using indicator loadings and AVE. Reported indicator loadings ranged from 0.723 to 0.914, and all construct-level AVE values exceeded 0.50, supporting convergent validity at the summary level.

For full reproducibility, the final manuscript should include the complete outer-loading table for every indicator and identify any indicators deleted, retained, or modified during model assessment. Those item-level values were not available in the reviewed manuscript and therefore are not reconstructed here.

Convergent Validity

The measurement model was first evaluated through indicator loadings and Average Variance Extracted (AVE). All indicator loadings exceeded the recommended threshold of 0.70, ranging from 0.723 to 0.914. Similarly, all constructs demonstrated AVE values above 0.50, indicating satisfactory convergent validity.

Table 1. Convergent Validity

Construct	AVE
Digital Public Financial Management	0.721
Transparency	0.735
Accountability	0.748
Local Government Performance	0.703

These findings indicate that the indicators adequately represent their respective latent constructs.

Reliability Assessment

Reliability was assessed using Cronbach's Alpha and Composite Reliability (CR). Discriminant validity was assessed using HTMT. The manuscript states that all HTMT values were below 0.85; however, the complete HTMT matrix and the Fornell-Larcker matrix are not reported in the source file. These matrices should be inserted from the original SmartPLS output so readers can evaluate discriminant validity independently (Henseler et al., 2015).

Table 2. Reliability Assessment

Construct	Cronbach's Alpha	Composite Reliability
DPFM	0.914	0.932
Transparency	0.902	0.925
Accountability	0.918	0.936
Local Government Performance	0.906	0.927

All reliability values exceeded the minimum threshold of 0.70, confirming internal consistency reliability.

Discriminant Validity

Discriminant validity was examined using the HTMT criterion. All HTMT values were below 0.85, indicating satisfactory discriminant validity among constructs. The measurement model therefore demonstrated adequate validity and reliability, supporting further structural model analysis.

DPFM explained 57.1% of the variance in transparency and 61.4% of the variance in accountability. DPFM, transparency, and accountability jointly explained 69.3% of the variance in local government performance. These R^2 values indicate meaningful explanatory capacity in this sample, but their substantive adequacy should be interpreted in relation to comparable governance research rather than labeled categorically as 'substantial' from a universal threshold.

Coefficient of Determination (R^2)

The explanatory power of the model was assessed using R^2 values.

Table 3. Coefficient of Determination (R^2)

Endogenous Variable	R^2
Transparency	0.571
Accountability	0.614
Local Government Performance	0.693

The results indicate that Digital Public Financial Management explains 57.1% of the variance in transparency and 61.4% of the variance in accountability. Furthermore, Digital Public Financial Management, transparency, and accountability jointly explain 69.3% of the variance in local government performance. According to Hair et al. (2022), these values indicate substantial explanatory power.

The bootstrapped direct-effect estimates were positive and statistically significant for all five specified paths. These coefficients are interpreted as conditional associations within the structural model rather than as causal effects because the design is cross-sectional.

Hypothesis Testing

Hypothesis testing was conducted using bootstrapping with 5,000 subsamples. Both specific indirect effects were statistically significant: DPFM → Transparency → Performance ($\beta = 0.215$, $p < .001$) and DPFM → Accountability → Performance ($\beta = 0.306$, $p < .001$). Their sum was 0.521. The numerical difference between the two indirect coefficients is described cautiously because no formal test of the difference between indirect effects was reported. Bootstrapped 95% confidence intervals should be added from the original SmartPLS output in the final version.

Table 4. Hypothesis testing

Relationship	β	t-value	p-value	Result
DPFM → Transparency	0.756	18.734	< .001	Supported
DPFM → Accountability	0.783	21.119	< .001	Supported
Transparency → Performance	0.284	4.126	< .001	Supported
Accountability → Performance	0.391	5.442	< .001	Supported
DPFM → Performance	0.241	3.315	0.001	Supported

The results demonstrate that Digital Public Financial Management significantly improves transparency, accountability, and local government performance. Similarly, transparency and accountability significantly enhance organizational performance.

The positive association between DPFM and transparency ($\beta = 0.756$) is consistent with the proposition that digital financial systems can improve the availability, traceability, and timeliness of public financial information. This interpretation accords with digital-transformation research emphasizing that technology creates governance value when it is embedded in redesigned processes and information flows (Mergel et al., 2019) and with digital PFM guidance linking integrated systems to more transparent fiscal operations (Rivero del Paso et al., 2023). The result should nevertheless be understood as an association between respondents' assessments of DPFM and transparency, not proof that technology adoption alone caused greater openness.

Table 5. Mediation Path

Mediation Path	β	t-value	p-value	Result
DPFM → Transparency → Performance	0.215	4.572	< .001	Supported
DPFM → Accountability → Performance	0.306	5.821	< .001	Supported
Total Indirect Effect	0.521	7.214	< .001	Supported

The indirect effects are larger than the direct effect of DPFM on performance, suggesting that transparency and accountability serve as critical governance mechanisms through which digital financial management generates organizational benefits.

Discussion

The findings provide consistent evidence that Digital Public Financial Management (DPFM) is positively associated with the governance mechanisms and organizational outcomes examined in this study. DPFM showed strong positive associations with transparency ($\beta = 0.756$) and accountability ($\beta = 0.783$), while transparency ($\beta = 0.284$), accountability ($\beta = 0.391$), and DPFM itself ($\beta = 0.241$) were positively associated with local government performance. More importantly, the specific indirect effects through transparency ($\beta = 0.215$) and accountability ($\beta = 0.306$) were statistically significant, indicating that part of the relationship between DPFM and performance operates through these two parallel governance mechanisms. The results therefore move beyond a purely technological explanation of digital government by suggesting that the organizational value associated with digital financial systems depends partly on whether digitalization is translated into accessible information and institutional answerability. Given the cross-sectional design, however, these coefficients should be interpreted as associations within the specified structural model rather than definitive evidence of temporal or causal effects.

The strong relationship between DPFM and transparency is consistent with contemporary international research emphasizing that digital transformation changes not only technological infrastructure but also information flows, organizational routines, and administrative relationships. Haug et al. (2024), based on a systematic review of 164 studies, conceptualized public-sector digital transformation as a cumulative process in which technological adoption produces organizational and

institutional changes rather than automatic performance improvements. Similarly, Agostino, Saliterer, et al. (2022) showed that digitalization changes how public-sector data are produced, communicated, interpreted, and used for accountability. These perspectives help explain why the present study found a substantial DPFM–transparency association: integrated budgeting, reporting, procurement, and monitoring systems can reduce informational fragmentation and make fiscal information more timely and traceable. Nevertheless, transparency should not be equated with the mere availability of digital information. Effective transparency requires usable, comprehensible, and decision-relevant disclosure, because digitally publishing financial data without improving accessibility or institutional responsiveness may generate formal openness without substantive governance improvement.

The positive association between DPFM and accountability ($\beta = 0.783$) further suggests that digital systems may facilitate audit trails, transaction traceability, monitoring, and control mechanisms that strengthen institutional answerability. This interpretation is compatible with Agency Theory because digital financial information can reduce information asymmetry between officials, supervisors, auditors, and other oversight actors. International evidence nevertheless indicates that technology alone is insufficient. Shenkoya (2023), for example, concluded that digital transformation can strengthen transparency and accountability, but emphasized that technological infrastructure and institutional capacity substantially condition these benefits. Research on digital auditing likewise indicates that digital technologies can increase the scope and quality of monitoring while simultaneously requiring new competencies, revised control practices, and organizational adaptation (Manita et al., 2020; Pizzi et al., 2021). Consequently, the relatively large DPFM–accountability coefficient in the present study should be interpreted as evidence of a strong empirical association, not as evidence that digitization mechanically generates accountable administrative behavior.

Transparency and accountability were also positively associated with local government performance. The transparency coefficient ($\beta = 0.284$) supports the proposition that accessible financial information can facilitate monitoring, stakeholder evaluation, organizational learning, and more informed administrative decision-making. Accountability exhibited a numerically larger coefficient ($\beta = 0.391$); however, because the study did not estimate a formal statistical test comparing these coefficients, it would be inappropriate to conclude that accountability is statistically more influential than transparency. Instead, the findings suggest complementary functions: transparency increases visibility, whereas accountability connects information to answerability, control, and administrative responsibility. This interpretation corresponds with broader international evidence showing that digital transformation is more strongly associated with governmental efficiency when technology is supported by organizational coordination and institutional capability. Yang et al. (2024), for instance, found that digital transformation enhanced governmental efficiency and that coordination strengthened these effects, while Atobishi et al. (2024) demonstrated that public-sector digital capabilities can contribute to organizational performance through an organizational intermediary—agility—rather than only through an unconditional direct pathway. Li and Yang (2024) likewise showed that fiscal transparency strengthened the relationship between digital development and local fiscal outcomes in Chinese cities.

The mediation results constitute the most important explanatory contribution of this study. Both specific indirect pathways were significant: DPFM → Transparency → Performance ($\beta = 0.215$) and DPFM → Accountability → Performance ($\beta = 0.306$). This pattern supports a parallel-mediation interpretation, whereby transparency and accountability represent distinct institutional mechanisms connecting digital financial management with organizational performance. It does not

support serial mediation because the structural model did not estimate a Transparency → Accountability pathway. The findings are consistent with the broader argument of Agostino, Saliterer, et al. (2022) and Haug et al. (2024) that digital transformation should be understood as a socio-organizational process rather than as the acquisition of technology alone. Theoretically, Digital Governance perspectives are therefore refined by demonstrating that the DPFM–performance relationship partly operates through institutional governance arrangements. Agency Theory helps explain how monitoring and information traceability may strengthen accountability, while Public Value Theory provides a broader interpretation of why improved financial governance may be associated with organizational outcomes. Good governance, however, should remain an interpretive framework in this manuscript rather than being described as an empirically tested latent construct, because good governance itself was not directly estimated in the PLS-SEM model.

The Indonesian evidence provides particularly strong contextual support for these findings. Sofyani et al. (2020), studying local government organizations in Surabaya, found that effective information-technology governance played an intervening role in linking IT-related organizational practices with service quality, accountability, and transparency. Nani and Ali (2020), using data from Indonesian local-government e-procurement units, similarly showed that effective electronic procurement depends on organizational, technological, strategic, and human-resource conditions and can contribute to accountability, transparency, efficiency, and effectiveness. More recently, Pribadi et al. (2024), using PLS-SEM with 424 employees from four Indonesian local governments, found positive relationships involving ICT, transparency, accountability, and digital government implementation. Octavio and Urumsah (2024), examining 541 Indonesian provincial and district/city governments, also found that e-government maturity, financial-report quality, and accountability systems positively influenced digital transparency. These findings reinforce the present study's proposition that digitalization becomes governance-relevant when institutional systems support disclosure and accountability. Nevertheless, Indonesian research also identifies contextual constraints. Wahyuni et al. (2024) documented continuing problems involving technological robustness, transparency, and interorganizational integration, while Ariani and Setyaningrum (2023) showed that electronic procurement should be accompanied by effective monitoring and anti-corruption arrangements. Thus, the present findings are consistent with Indonesian evidence while further extending it by explicitly modeling transparency and accountability as simultaneous mediators between digital financial management and performance.

From theoretical, educational, and policy perspectives, these results imply that successful DPFM requires an integrated combination of technology, governance arrangements, and institutional capability. Theoretically, the findings extend digital-governance reasoning by distinguishing technological adoption from the transparency and accountability processes through which digital systems may be associated with organizational performance. From an educational or capacity-building perspective, the relevant implication is professional learning for public officials, rather than student engagement, emotional well-being, or online identity formation, because those educational constructs were not investigated in this study. Local governments should therefore strengthen employees' digital financial literacy, data interpretation, audit capability, cybersecurity awareness, and capacity to translate system-generated information into managerial decisions. Broader digital-learning research emphasizes the value of sustained readiness and lifelong development when individuals operate in evolving digital environments (Schiller, 2025). At the policy level, digital financial reform should therefore combine interoperable systems with disclosure standards, auditability, internal controls, competency development, data governance, and mechanisms enabling oversight institutions and citizens to make meaningful use of financial information.

The novelty of this study lies less in demonstrating that digital technologies matter for public

administration than in specifying how DPFM is associated with local-government performance through two simultaneously tested institutional mechanisms. Earlier studies have frequently examined e-government, transparency, accountability, service quality, financial reporting, or organizational performance as bilateral relationships. By estimating DPFM, transparency, accountability, and performance within one PLS-SEM framework, this study provides empirical evidence that the direct DPFM–performance relationship coexists with significant transparency- and accountability-mediated pathways. The parallel model therefore contributes a more differentiated account of digital financial transformation: digital systems may create organizational value partly through greater informational openness and partly through strengthened answerability and control. This formulation also avoids treating good governance as an automatic technological consequence and instead conceptualizes transparency and accountability as specific institutional channels through which digital infrastructure may become governance capability.

Several limitations qualify these conclusions and provide directions for future research. First, the cross-sectional design does not establish temporal ordering, so longitudinal or panel research is required before causal claims can be made. Second, reliance on self-reported perceptions from public officials may generate common-method variance and socially desirable responses; future studies should combine survey data with audit findings, financial-report quality indicators, system-usage logs, budget execution data, and independently measured service-performance outcomes. Third, institutional heterogeneity across local governments may influence digital maturity and governance capacity, suggesting the need for multigroup or multilevel analysis across regions, administrative tiers, and levels of fiscal capacity. Fourth, future models should examine potential moderators such as digital competence, leadership commitment, internal-control quality, organizational culture, cybersecurity readiness, interoperability, and regulatory enforcement. Finally, subsequent studies could explicitly test whether transparency precedes accountability through a serial pathway, compare competing mediation models, and investigate whether accountability and transparency operate differently under varying levels of institutional maturity. Such extensions would provide stronger evidence regarding the mechanisms through which DPFM contributes to sustainable public-sector performance.

Conclusion

This study found that Digital Public Financial Management was positively associated with transparency, accountability, and local government performance, while transparency and accountability each showed significant specific indirect relationships between DPFM and performance. The findings therefore support a parallel-mediation model in which digital financial management is related to organizational performance partly through openness and answerability. The theoretical contribution is confined to the tested constructs: good governance provides the broader interpretive frame but was not measured as a separate latent outcome. For practice, the results indicate that digital financial investment should be accompanied by transparency and accountability mechanisms if local governments seek to translate technology-enabled financial processes into organizational value.

These conclusions should be interpreted in light of four limitations: the cross-sectional design does not establish temporal causality; all substantive variables were self-reported; purposive sampling limits statistical representativeness; and common-method variance may affect associations measured in a single survey. Future research should use longitudinal or multi-source designs, probability-based or population-benchmarked sampling where feasible, and explicit common-method diagnostics. It should also report complete item-level measurement

results, bootstrapped confidence intervals, f^2 , Q^2 , VIF, and predictive assessments, and test whether the transparency and accountability indirect effects differ significantly across institutional contexts.

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