



Digital Governance in the Management of Local Revenue in the City of Makassar

Muhammad Fuad Arfandi¹, Muh. Akmal Ibrahim², Hasniati², Didik Iskandar³

¹Doctoral Student of Public Administration, Faculty of Social and Political Science, Hasanuddin University, Makassar, Indonesia

²Department of Administrative Science, Faculty of Social and Political Science, Hasanuddin University, Makassar, Indonesia

³Public Administration, Universitas Negeri Makassar, Indonesia

*Corresponding Author: Muhammad Fuad Arfandi

Email: fuadarfandi12@gmail.com

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Abstract

Advances in information and communication technology have driven significant changes in public administration, including the management of Local Own-Source Revenue (PAD). The Makassar City Government, through the Regional Revenue Agency (Bapenda), has developed various digital-based local tax services such as the PAKINTA application, cashless payments via QRIS and Virtual Accounts, and an integrated electronic tax service system. This study aims to analyse Digital Governance in the management of Makassar City's Local Own-Source Revenue based on a Digital Governance approach encompassing control, coordination, incentives, and trust. This study employs a qualitative approach. Data collection was conducted through observation, interviews, and documentary analysis. Key informants included the Regional Revenue Agency (Bapenda) and other government agencies, taxpayers, banks, and third parties (digital innovation developers). Data analysis involved the stages of data reduction, data presentation and drawing conclusions. The research results indicate that the implementation of Digital Governance in the management of the City of Makassar's Local Revenue has established a more integrated local tax payment system through the use of cashless transactions, the integration of electronic payments, digital communication between institutions, and real-time monitoring of local revenue. Digital PAD management in Makassar City demonstrates a shift from manual service delivery towards an electronic-based local revenue management system involving inter-agency coordination, supervision of digital transactions, and the use of various electronic payment channels in local tax services. It can be concluded that Digital Governance in the management of Makassar City's PAD has established a more integrated electronic payment-based local revenue management system compared to the previous manual service delivery model.

Introduction

Digital transformation has become one of the most significant developments in contemporary public administration, fundamentally changing the way governments deliver services, manage information, and interact with citizens. The rapid advancement of information and communication technology has encouraged public institutions to adopt digital systems that

improve administrative efficiency, strengthen accountability, increase transparency, and enhance the quality of public service delivery (Ramadhani et al., 2025). Rather than functioning solely as a technological innovation, digital transformation has evolved into a strategic instrument that supports evidence-based decision making, integrated governance, and sustainable public sector reform. Consequently, governments at both national and local levels are increasingly investing in digital infrastructure to improve governance performance and public trust (Chowdhury, 2022; Pandey, 2023).

Within the context of local government, digital transformation is particularly important in the management of local revenue because fiscal capacity determines the ability of governments to finance public services, infrastructure development, and community welfare programs. Effective local revenue management requires accurate data, efficient administrative procedures, transparent financial reporting, and reliable monitoring systems. Traditional manual administrative processes are often characterized by lengthy procedures, fragmented information, limited supervision, and a high risk of administrative errors. These limitations have encouraged local governments to modernize revenue administration through digital technologies that enable faster transactions, integrated databases, and real-time monitoring of financial activities (Tuli et al., 2025; Ani, 2025; Saim & Traore, 2025).

As one of the largest metropolitan cities in Eastern Indonesia, Makassar has experienced rapid economic growth supported by expanding commercial activities, service industries, tourism, and urban development. These developments have significantly increased the importance of local taxes as one of the primary sources of Local Own-Source Revenue (PAD). The sustainability of regional development therefore depends not only on the ability to increase tax collection but also on the effectiveness of governance mechanisms that ensure efficient and transparent revenue administration. In response to these challenges, the Makassar City Government has introduced various digital innovations through the Regional Revenue Agency (Bapenda), including electronic tax administration, integrated payment systems, QRIS-based transactions, Virtual Account services, and the PAKINTA application. These innovations are intended to simplify tax administration, reduce manual procedures, improve monitoring, and provide more convenient services for taxpayers (Pramudjanti et al., 2023; Septiningrum et al., 2024).

The implementation of digital services has substantially changed the administrative process of local tax collection. Electronic payment systems allow taxpayers to complete transactions without visiting government offices, while digital databases facilitate faster verification and recording of tax payments. Real-time monitoring also enables government agencies to supervise revenue collection more effectively and identify potential discrepancies at an earlier stage. The integration of electronic payment platforms with banking systems contributes to greater financial transparency and minimizes opportunities for administrative irregularities. Consequently, digitalization has become an important strategy for improving the effectiveness of local fiscal governance (Adewale et al., 2022; Jameaba, 2022; Putrevu & Mertzanis, 2024; Koldovskiy & Rekunenko, 2025).

Despite these improvements, the implementation of digital governance in local revenue management continues to face several practical challenges. Technical problems such as system disruptions, unstable network connectivity, delayed synchronization of transaction data, and limitations in system interoperability occasionally affect service quality. These technical issues reduce operational efficiency and may delay administrative processes, particularly during periods of high transaction volume. Since digital public services depend heavily on technological reliability, maintaining stable digital infrastructure remains an essential requirement for ensuring consistent service delivery.

Institutional coordination also represents a significant challenge in digital revenue management. Local tax administration involves multiple government agencies, financial institutions, and technology providers that must exchange information continuously. Differences in administrative procedures, data standards, and technological platforms may reduce the effectiveness of information sharing and delay decision-making processes. In some cases, inconsistencies between databases require additional verification before transactions can be finalized, increasing administrative workload and reducing overall efficiency. Strengthening institutional collaboration therefore remains essential to ensure seamless integration of digital public services (Wouters et al., 2023; Das, 2024; Ikwuanusi et al., 2024).

Another important challenge concerns the adoption of digital services by taxpayers. Although electronic payment systems provide greater convenience, not all citizens possess the same level of digital literacy or technological readiness. Some taxpayers continue to prefer conventional administrative procedures because they are more familiar with manual services or experience difficulties using digital applications. Age differences, educational background, technological skills, and internet accessibility contribute to varying levels of digital adoption among different groups of society. Consequently, the success of digital transformation depends not only on technological innovation but also on the government's ability to encourage behavioral change and improve public digital literacy.

Public trust also plays a decisive role in determining the effectiveness of digital governance. Citizens are more likely to utilize digital public services when they perceive them as secure, reliable, transparent, and easy to use. Concerns regarding personal data protection, cybersecurity, transaction failures, and system reliability may reduce confidence in digital services and discourage taxpayers from adopting electronic payment systems. Furthermore, transparency in financial management and the availability of accurate transaction information are essential for strengthening public confidence in government institutions. Digital governance therefore requires not only advanced technological infrastructure but also effective mechanisms that ensure accountability, information security, and public confidence (Selvakumar et al., 2025; Balaji, 2025; Sharmin & Chowdhury, 2025).

The complexity of these issues demonstrates that digital governance extends beyond the simple adoption of information technology. Successful digital transformation requires strong organizational capacity, effective inter-agency collaboration, reliable technological infrastructure, adaptive administrative procedures, and continuous engagement with citizens. Governments must ensure that digital systems support organizational objectives while simultaneously improving service quality and strengthening public accountability. Without adequate institutional readiness, technological innovation alone is unlikely to achieve meaningful improvements in governance performance.

The management of local revenue provides an important context for understanding how digital governance can improve public administration while simultaneously revealing the practical challenges associated with organizational transformation (Idzi & Gomes, 2022; Kuhlmann & Marienfeldt, 2023; Sadat et al., 2025). The integration of digital payment systems, electronic databases, automated monitoring, and online public services illustrates the growing importance of digital governance in strengthening fiscal administration. At the same time, issues related to coordination, infrastructure, digital literacy, and public trust demonstrate that successful implementation requires comprehensive governance strategies rather than technological investment alone.

Although digital transformation has received considerable attention within public administration research, studies examining digital governance in the context of local revenue management remain relatively limited. Existing research has predominantly focused on e-

government implementation, smart city development, digital public services, or electronic administrative systems in general. Comparatively less attention has been devoted to understanding how digital governance influences the management of local fiscal resources, particularly in relation to administrative control, institutional coordination, taxpayer engagement, and public confidence within integrated digital revenue systems (Ravšelj et al., 2023; Xanthopoulou et al., 2023; Sun et al., 2024).

The case of Makassar City offers an important opportunity to examine how digital governance contributes to improving local revenue administration in an urban government that has actively implemented digital innovation. Understanding the experiences, achievements, and remaining challenges of digital revenue management can provide valuable insights for other local governments seeking to strengthen fiscal governance through digital transformation. The findings are expected to contribute to the development of more effective digital governance practices while supporting policy improvements aimed at increasing efficiency, transparency, accountability, and the overall quality of public service delivery in local government administration.

Method

Research Design

This study employed a qualitative research approach using a descriptive-exploratory design to examine the implementation of digital governance in the management of Local Own-Source Revenue (Local Original Income/PAD) in Makassar City, Indonesia. A qualitative approach was selected because the study sought to obtain an in-depth understanding of how digital governance is implemented in public financial administration, the challenges encountered during implementation, and the interactions among government institutions, financial service providers, and taxpayers within the digital tax ecosystem. Unlike quantitative approaches that focus on measuring variables, qualitative research enables researchers to explore complex organizational processes, institutional dynamics, and participants' experiences within their natural context.

The descriptive dimension of the research was intended to provide a comprehensive description of the existing digital governance practices in local revenue management, while the exploratory dimension allowed the researchers to investigate emerging issues, institutional adaptations, implementation challenges, and opportunities for improving digital public services. This research design was considered appropriate because digital governance in local revenue administration continues to evolve alongside technological innovation, requiring contextual analysis of organizational behavior, administrative processes, and stakeholder interactions rather than hypothesis testing.

Research Site and Context

The research was conducted in Makassar City, South Sulawesi Province, Indonesia, with the Regional Revenue Agency (Regional Revenue Agency/Bapenda) serving as the primary research site. Makassar was selected because it is one of the largest metropolitan cities in Eastern Indonesia and has actively implemented digital transformation in local tax administration through integrated electronic payment systems, QRIS-based transactions, Virtual Account facilities, and the PAKINTA digital tax application. These initiatives position Makassar as an appropriate case for examining digital governance within local fiscal administration.

The study focused on the implementation of digital governance in the management of local own-source revenue, particularly digital tax administration and payment services. The

investigation emphasized four operational dimensions of digital governance: control, coordination, incentives, and trust. These dimensions were examined to understand how digital systems facilitate administrative control, strengthen institutional coordination, encourage taxpayer participation in digital services, and enhance public trust in electronic tax administration.

Research Participants

Participants were selected using purposive sampling to ensure that the information collected was obtained from individuals directly involved in the implementation, management, and utilization of digital local tax services. Purposive sampling is appropriate in qualitative research because it enables the selection of participants who possess relevant knowledge, professional experience, and direct involvement in the phenomenon under investigation.

The study involved ten categories of informants representing multiple stakeholders within the digital governance ecosystem. These included the Secretary of the Makassar Regional Revenue Agency, the Head of the Planning and Reporting Sub-Division, a Technical Policy Analyst, members of the Information Technology team, the Head of the Entertainment Tax and Street Lighting Tax Division, the Head of Manggala District, representatives from Bank Sulselbar, officials from the Regional Revenue Technical Implementation Unit, business taxpayers, and Land and Building Tax (PBB) taxpayers. The inclusion of government officials, banking representatives, and taxpayers enabled the researchers to capture multiple perspectives regarding policy implementation, technological infrastructure, administrative coordination, and user experiences.

Data Collection

Data were collected through in-depth interviews, non-participant observation, and document analysis. Employing multiple methods allowed the researchers to obtain comprehensive evidence while strengthening the credibility of the findings through data triangulation.

In-depth interviews constituted the primary source of empirical data. Semi-structured interview guidelines were used to facilitate open discussions while ensuring consistency across interviews. Questions focused on participants' experiences with digital tax services, institutional coordination, implementation challenges, digital infrastructure, transaction monitoring, taxpayer participation, and perceptions of service quality. The flexible nature of semi-structured interviews enabled participants to elaborate on issues considered important while allowing researchers to pursue emerging themes during the interview process.

Observation was conducted to obtain a direct understanding of how digital tax administration operates within the organizational environment. The researchers observed administrative procedures, interactions between staff and taxpayers, the utilization of digital applications, payment verification processes, and coordination among relevant units involved in local revenue management. Observation complemented interview findings by providing contextual evidence regarding actual administrative practices.

Document analysis served as an additional source of evidence to support the findings obtained through interviews and observations. The documents analyzed included government regulations, institutional reports, strategic planning documents, standard operating procedures, statistical reports on local tax administration, digital service documentation, official policy documents, and other administrative records related to digital local revenue management. These documentary sources provided institutional context and facilitated verification of empirical findings.

Data Analysis

The collected data were analyzed using the interactive model developed by Miles, Huberman, and Saldaña, consisting of data condensation, data display, and conclusion drawing with continuous verification. These analytical activities were conducted simultaneously throughout the research process rather than sequentially.

The first stage involved data condensation, during which interview transcripts, observation notes, and documentary materials were carefully reviewed, coded, categorized, and simplified to identify information relevant to the research objectives. Similar concepts were grouped into broader categories representing important aspects of digital governance implementation.

The second stage involved data display, where the categorized information was systematically organized into thematic matrices and narrative descriptions. Organizing the data in this manner enabled the researchers to identify recurring patterns, institutional relationships, implementation processes, similarities, and differences among participant perspectives.

The final stage involved drawing conclusions and continuously verifying interpretations throughout the analytical process. Emerging findings were repeatedly compared with empirical evidence from multiple data sources to ensure consistency and credibility. This iterative analytical process enabled the researchers to develop comprehensive explanations regarding the implementation of digital governance in local revenue management while maintaining close alignment between empirical evidence and research interpretations.

Results and Discussion

The findings presented in this section are derived from in-depth interviews, field observations, and document analysis conducted at the Makassar City Regional Revenue Agency (Bapenda) and related institutions involved in digital local revenue administration. The analysis explores how digital governance has been implemented in the management of Local Own-Source Revenue (PAD) by examining organizational practices, stakeholder experiences, and institutional processes that have emerged through digital transformation. Consistent with the qualitative research design, the findings are organized into five interrelated themes that reflect the key dimensions of digital governance identified during data analysis. Each theme integrates empirical evidence from multiple data sources with analytical interpretation to provide a comprehensive understanding of how digital technologies have reshaped local revenue administration, strengthened governance capacity, and influenced interactions between government institutions and taxpayers in Makassar City.

Digital Transformation of Local Revenue Administration

The findings of this study indicate that the implementation of digital governance has fundamentally transformed the management of Local Own-Source Revenue (Local Original Income/PAD) in Makassar City. Based on evidence obtained from in-depth interviews, field observations, and document analysis, the transformation extends beyond the adoption of digital payment technologies and represents a broader organizational change in public financial administration. Digital governance has restructured administrative workflows, improved institutional coordination, strengthened financial monitoring, and enhanced service accessibility for taxpayers. Rather than functioning merely as a technological innovation, digitalization has become an integral component of fiscal governance, enabling government institutions to manage local revenue through integrated digital systems that support transparency, accountability, and operational efficiency. Prior to the implementation of digital services, the administration of local taxes relied predominantly on conventional procedures

involving manual documentation, face-to-face interactions, and fragmented administrative processes. Taxpayers were generally required to visit government offices to complete payment procedures, submit supporting documents, and wait for manual verification before their transactions could be recorded within the regional financial system. These procedures frequently resulted in administrative delays, inconsistencies in transaction records, and limited monitoring capacity. Furthermore, manual processes required considerable administrative resources for document verification, reconciliation, and financial reporting, reducing the overall efficiency of public service delivery. The introduction of the PAKINTA application, together with QRIS, Virtual Account facilities, mobile banking, internet banking, and other electronic payment channels, has substantially changed these administrative practices. Interviews with government officials consistently revealed that the digital platform has simplified tax payment procedures while simultaneously strengthening administrative control. Taxpayers are now able to complete financial transactions remotely, and payment information is automatically integrated into the Regional Revenue Agency's information system.

As explained by one senior government official:

"The implementation of digital payment services has significantly simplified tax administration. Once taxpayers complete the payment, the transaction is immediately recorded in our system, allowing us to monitor revenue collection more efficiently than under the previous manual process."

This statement demonstrates that digital governance has fundamentally altered the administrative logic of local revenue management. The transition from manual processing to integrated electronic transactions has reduced dependence on paper-based administration while enabling government officials to supervise revenue collection through continuously updated digital information. Consequently, the role of information technology has expanded from supporting administrative activities to becoming an essential component of organizational decision-making.

Field observations further confirmed these organizational changes. During observations conducted at the Regional Revenue Agency, researchers found that administrative staff rarely handled manual payment verification except in cases involving technical interruptions or exceptional circumstances. Instead, government employees primarily focused on assisting taxpayers in utilizing digital services, resolving technical issues, and monitoring transaction performance through electronic dashboards. The reduction of repetitive administrative work has enabled public officials to allocate greater attention to analytical tasks, service quality improvement, and institutional coordination.

Document analysis also supports these observations. Internal administrative documents indicate that digital payment channels have become increasingly integrated into routine revenue collection activities. The availability of multiple electronic payment alternatives has expanded taxpayers' access to public services while reducing congestion at government service counters. The integration of payment information into centralized databases has also improved the consistency of financial reporting and facilitated more efficient reconciliation procedures.

An Information Technology officer explained the significance of this integration:

"Our objective is not simply to digitalize payment transactions. We are building an integrated digital ecosystem where payment verification, financial recording, monitoring, and reporting operate within a single administrative platform."

The interview highlights that digital transformation within the Regional Revenue Agency should be understood as organizational integration rather than simple technological

substitution. Digital governance involves redesigning administrative processes to enable information sharing, institutional connectivity, and coordinated financial management across multiple organizations involved in local revenue administration. Another important finding concerns the increased availability of real-time information for managerial decision-making. Interviews with senior administrators revealed that digital systems enable supervisors to monitor daily revenue performance rather than waiting for periodic financial reports. This capability has significantly improved organizational responsiveness by allowing managers to identify operational problems at an earlier stage and implement corrective actions more rapidly.

One participant stated:

"Previously we evaluated performance after monthly reports were completed. Now we can identify payment trends every day and immediately investigate any unusual transaction patterns."

The availability of continuously updated information has therefore transformed managerial practices within the Regional Revenue Agency. Digital dashboards and integrated financial databases provide decision-makers with timely information regarding tax collection performance, transaction volumes, payment trends, and potential administrative irregularities. Such capabilities enhance organizational responsiveness and strengthen evidence-based public management.

From the taxpayers' perspective, digital transformation has significantly improved service accessibility. Business taxpayers interviewed during this research emphasized that electronic payment facilities provide greater flexibility because tax obligations can be fulfilled without interrupting daily business operations. Electronic transactions eliminate the need to travel to government offices, thereby reducing transportation costs, waiting time, and administrative burdens.

As expressed by one business taxpayer:

"The digital payment system is much more convenient because we can complete tax payments directly from our office without leaving our business activities. The confirmation is also received immediately, making the process much faster."

This finding indicates that digital governance contributes to improving taxpayer satisfaction through increased convenience and accessibility. Rather than relying solely on regulatory enforcement, the government enhances voluntary compliance by providing user-friendly public services that reduce transaction costs for citizens.

Nevertheless, the findings also reveal that digital transformation remains an ongoing organizational process. Several interview participants acknowledged that technical challenges continue to affect service continuity. Network instability, temporary server interruptions, delayed synchronization between payment platforms, and occasional pending transactions still require manual intervention from administrative personnel. These operational challenges illustrate that technological innovation alone cannot fully eliminate administrative risks.

One technical officer explained:

"Most transactions are processed automatically, but whenever network problems occur, officers must manually verify several transactions before they can be finalized. Therefore, continuous system maintenance remains essential."

These findings suggest that successful digital governance depends not only on technological innovation but also on organizational readiness to manage technological risks. Investments in server capacity, cybersecurity, system maintenance, and technical support remain critical for

ensuring the reliability of digital public services. Without adequate technological infrastructure, the benefits of digital transformation may not be fully realized.

Another significant finding emerging from interviews concerns organizational learning. Government officials consistently emphasized that implementing digital governance required substantial adjustments in institutional culture, employee competencies, and administrative routines. Digital transformation therefore represents a continuous learning process in which civil servants develop new capabilities related to digital technology, information management, electronic communication, and public service innovation.

Digital Control in Local Revenue Management

The findings indicate that digital governance has significantly strengthened the control mechanisms governing local revenue management in Makassar City. Data collected from interviews, field observations, and institutional documents demonstrate that the implementation of integrated digital payment systems has shifted administrative control from conventional manual supervision to continuous electronic monitoring. Within the previous administrative model, control activities relied heavily on paper-based documentation, manual reconciliation, and periodic reporting, resulting in delays in detecting administrative inconsistencies and limiting the government's ability to monitor revenue collection effectively. The implementation of digital governance has fundamentally altered this approach by enabling automated transaction recording, real-time payment verification, and centralized financial monitoring (Burugulla, 2024; Shibahathulla et al., 2024; Oleti, 2025).

The transition toward digital control has been facilitated through the integration of the PAKINTA application with QRIS, Virtual Account facilities, banking systems, and other electronic payment channels. Every payment transaction is automatically transmitted into the Regional Revenue Agency's database and linked directly to the regional treasury account. This integration minimizes manual intervention during transaction processing while improving the accuracy and transparency of financial reporting. Consequently, digital governance has established a control environment where financial information is continuously updated, enabling public administrators to supervise local revenue collection more efficiently than under conventional administrative procedures.

One senior administrator explained the significance of this transformation:

"The most important improvement is that transactions are now recorded automatically. Every payment immediately enters the system, allowing us to monitor local revenue continuously without waiting for manual reports."

This statement illustrates that digital control has changed the nature of financial supervision. Rather than depending on retrospective administrative reports, managers are now able to access current transaction information through electronic dashboards. Such availability of real-time information enables faster identification of payment irregularities, delayed transactions, and inconsistencies between financial records. Consequently, administrative decisions can be made more rapidly because supervisors have immediate access to updated operational data.

Field observations support these interview findings. During observations conducted within the Regional Revenue Agency, researchers found that financial officers regularly monitored digital dashboards displaying transaction volumes, payment confirmations, and revenue performance. Instead of manually verifying every individual payment, officers concentrated on supervising system performance, investigating irregular transactions, and responding to technical issues reported by taxpayers. This organizational change reflects a shift in the function of public

administrators from routine administrative processing toward strategic monitoring and operational oversight.

Document analysis further revealed that electronic transaction records have substantially strengthened accountability within local revenue management. Every payment generates a digital audit trail containing information regarding transaction time, payment channel, taxpayer identification, and payment status. These electronic records reduce opportunities for undocumented financial transactions while facilitating financial auditing and administrative verification. Compared with manual documentation, digital records provide greater consistency and reduce the likelihood of transcription errors that previously occurred during paper-based administrative processes.

An Information Technology officer emphasized the importance of automated recording by stating:

"Digital systems automatically record every transaction. This allows us to verify payment histories, investigate discrepancies, and conduct reconciliation much more efficiently than before."

The interview suggests that automation has become one of the principal mechanisms through which digital governance strengthens internal control. Automated recording minimizes human error while simultaneously improving the traceability of financial transactions. Every administrative action performed within the system can be monitored electronically, thereby enhancing transparency throughout the revenue management process.

Another important finding concerns the implementation of periodic digital reconciliation. Interviews with administrative personnel revealed that reconciliation activities are conducted routinely to compare transaction data recorded by the Regional Revenue Agency with banking records generated through electronic payment systems. This reconciliation process serves as an additional control mechanism to ensure that all financial transactions have been accurately transferred into the regional treasury account.

A participant explained:

"Although transactions are processed automatically, reconciliation remains essential because it confirms that payment information from the banking system is completely synchronized with the government's financial database."

This finding demonstrates that digital governance does not eliminate managerial oversight. Instead, it changes the focus of control from manual transaction verification toward continuous supervision of system integrity and data consistency. Human oversight therefore remains necessary to ensure that technological processes operate according to administrative standards.

Despite these improvements, the findings also reveal several challenges that continue to influence the effectiveness of digital control mechanisms. Interviews consistently identified network instability, temporary server interruptions, delayed synchronization, and occasional pending transactions as operational constraints affecting system reliability. Although these technical issues occur infrequently, they may delay payment confirmation and require temporary manual verification before transactions can be finalized.

One technical officer explained:

"When the network is stable, transactions are processed immediately. However, if connectivity problems occur, officers must manually verify pending transactions to ensure that no payment is lost."

Observational evidence confirmed that administrative staff occasionally performed manual verification during periods of system interruption. Such procedures ensured the continuity of public services but also demonstrated that digital governance remains dependent upon reliable technological infrastructure. Consequently, investment in server capacity, network stability, and information technology maintenance continues to represent a critical requirement for sustainable digital public administration.

Cybersecurity also emerged as an important component of digital control. Participants responsible for system management explained that the increasing reliance on electronic transactions requires stronger protection against unauthorized access, malware attacks, and data breaches. Several institutional documents indicate that the Regional Revenue Agency has implemented firewalls, user authentication procedures, data backup systems, and restricted access controls to safeguard financial information.

An IT specialist stated:

"Protecting taxpayer data is as important as processing transactions. Digital governance cannot function effectively if users do not trust the security of the system."

This finding indicates that digital control extends beyond financial supervision to include information security management. As public institutions become increasingly dependent upon electronic data, cybersecurity becomes an integral element of governance rather than merely a technical responsibility. Effective control therefore requires balancing administrative efficiency with robust data protection measures.

The empirical findings also suggest that digital control has improved organizational accountability by increasing transparency across all stages of local revenue administration. Since payment information is immediately accessible through electronic systems, managers can evaluate organizational performance more objectively using measurable indicators such as payment completion rates, transaction processing times, and daily revenue realization. This availability of performance information supports evidence-based management while strengthening institutional accountability to both government leaders and the public.

From a broader perspective, the findings demonstrate that digital governance has transformed control from a reactive administrative activity into a proactive managerial function. Under the previous manual system, administrative problems were often identified only after periodic reporting had been completed. Digital systems now enable government officials to detect operational issues almost immediately, allowing corrective action to be implemented before administrative problems become more severe.

Institutional Coordination in Digital Revenue Governance

The findings reveal that institutional coordination constitutes one of the most critical dimensions of digital governance in the management of Local Own-Source Revenue (PAD) in Makassar City. The implementation of digital tax administration is not solely dependent on technological innovation but also on the capacity of multiple institutions to coordinate administrative processes, exchange information efficiently, and collectively resolve operational challenges. Evidence gathered from interviews, field observations, and document analysis indicates that the Regional Revenue Agency (Bapenda) has established collaborative relationships with various stakeholders, including Bank Sulselbar, Bank Indonesia, the Department of Communication and Informatics, district governments, and the Regional Digitalization Acceleration and Expansion Team (TP2DD). These collaborative arrangements have enabled the integration of digital payment systems while supporting more effective financial administration across institutional boundaries.

Prior to the implementation of digital governance, coordination among institutions was primarily conducted through conventional bureaucratic procedures involving official correspondence, periodic coordination meetings, and manual exchange of administrative documents. Such mechanisms frequently delayed decision-making because transaction verification and financial reconciliation depended upon sequential communication between organizations. Interview participants explained that fragmented information systems also created inconsistencies in administrative records, requiring additional verification before financial reports could be finalized. These procedural limitations reduced organizational responsiveness and complicated efforts to monitor local revenue collection comprehensively.

The implementation of integrated digital systems has substantially altered these coordination mechanisms. Electronic payment platforms now enable continuous data exchange between government agencies and banking institutions, allowing transaction information to be transmitted automatically once taxpayers complete payment. As a result, coordination has shifted from periodic administrative communication toward continuous digital interaction supported by integrated information systems.

A senior official explained this institutional transformation:

"Digital governance has significantly improved coordination because all participating institutions are connected through the same payment ecosystem. Information moves much faster than under the previous administrative procedures."

This statement demonstrates that digital governance has transformed coordination from an administrative process characterized by document exchange into a collaborative process based on shared digital information. The availability of integrated transaction data reduces communication delays while improving the consistency of financial information used by participating organizations.

Field observations further confirmed that coordination has become increasingly dynamic following digital transformation. During the research period, the researchers observed regular communication between administrative officers, banking representatives, and information technology personnel whenever technical issues emerged during electronic transaction processing. Rather than relying exclusively on formal meetings, institutions frequently utilized digital communication platforms to resolve operational problems in real time. Such flexibility enabled technical issues to be addressed more rapidly while minimizing disruptions to taxpayer services.

One information technology officer explained:

"Whenever a technical problem occurs, we immediately communicate with the banking partner and the relevant technical units. Most issues can now be resolved within a relatively short period because communication no longer depends entirely on formal procedures."

This interview illustrates that digital governance has introduced more adaptive coordination mechanisms within public administration. Information technologies facilitate continuous interaction among organizations, allowing administrative decisions to be implemented more efficiently without compromising institutional accountability.

Document analysis similarly indicates that collaboration between the Regional Revenue Agency and Bank Sulselbar has become increasingly integrated through electronic payment infrastructure. Payment verification, transaction confirmation, and financial reconciliation are now supported by interconnected digital systems that enable both institutions to access consistent financial information. This integration minimizes discrepancies between banking

records and government financial databases while improving the reliability of revenue reporting.

Representatives from the banking sector emphasized that close institutional collaboration has become essential for maintaining service continuity.

"The digital payment system requires continuous coordination between the bank and the Regional Revenue Agency. System maintenance, payment verification, and transaction reconciliation can only operate effectively when both institutions work together."

The statement highlights that digital governance extends beyond technological integration by requiring sustained institutional collaboration. Effective coordination depends not only on compatible information systems but also on organizational commitment to maintaining communication, resolving operational issues, and continuously improving service quality.

The findings also indicate that district governments play an important coordinating role in facilitating taxpayer access to digital services. Interviews revealed that district offices frequently assist citizens by providing information regarding electronic payment procedures, promoting digital payment platforms, and communicating taxpayer concerns to the Regional Revenue Agency. This decentralized coordination contributes to expanding digital service accessibility while strengthening relationships between local government institutions and citizens.

One district administrator explained:

"Many citizens still require assistance when using digital payment services for the first time. Our responsibility is to help them understand the procedures while coordinating any technical problems with the Regional Revenue Agency."

The findings demonstrate that institutional coordination within digital governance extends beyond organizational interaction at the administrative level. Coordination also involves facilitating communication between government institutions and service users to ensure that digital innovations remain accessible and responsive to community needs.

Despite these achievements, several coordination challenges continue to influence the effectiveness of digital governance. Interview participants acknowledged that differences in information systems, software updates, and technical standards occasionally affect interoperability among participating institutions. Temporary synchronization delays may occur when one institution updates its digital platform while other organizations continue operating previous system configurations. These differences require additional coordination before normal service operations can be restored.

A technical policy analyst explained:

"Technology continues to evolve, and every system update requires coordination with all partner institutions. Compatibility between different platforms remains one of the major challenges in digital administration."

Observational findings similarly revealed that technical coordination becomes particularly important during periods of system maintenance or infrastructure upgrades. Administrative staff, information technology specialists, and banking personnel frequently work together to minimize service interruptions and ensure that taxpayers continue to receive reliable services throughout system adjustments.

Another important finding concerns the establishment of TP2DD as a collaborative governance mechanism supporting regional digital transformation. Institutional documents indicate that

TP2DD facilitates coordination among local government agencies, financial institutions, and national regulatory organizations in promoting digital financial services. Through regular coordination meetings, performance evaluations, and policy discussions, TP2DD contributes to strengthening institutional commitment toward accelerating regional digitalization.

The evidence therefore suggests that digital governance has expanded coordination beyond traditional bureaucratic boundaries by encouraging collaborative governance among multiple organizations with complementary responsibilities. Rather than operating independently, government agencies, financial institutions, and supporting organizations increasingly function as interconnected actors within a shared digital ecosystem.

Digital Governance in Local Revenue Management

The findings of this study demonstrate that the implementation of digital governance has fundamentally reshaped the management of Local Own-Source Revenue (PAD) in Makassar City through the integration of digital technologies, institutional collaboration, and administrative innovation. Rather than serving merely as a technological instrument for facilitating electronic tax payments, digital governance has evolved into a comprehensive governance mechanism that transforms organizational structures, administrative processes, inter-organizational relationships, and interactions between government institutions and taxpayers. The evidence collected from interviews, field observations, and documentary analysis indicates that digital transformation has strengthened the effectiveness of local revenue administration by improving operational efficiency, enhancing financial transparency, supporting evidence-based decision-making, and expanding taxpayers' access to public services (Birdayanthi et al., 2025; Magakwe, 2025).

One of the principal findings concerns the emergence of digital technology as an instrument of organizational transformation rather than simple technological modernization. The implementation of integrated payment platforms, including the PAKINTA application, QRIS, Virtual Accounts, and electronic banking services, has significantly reduced dependence on manual administrative procedures. Government officials no longer rely exclusively on paper-based documentation and periodic financial reporting but instead utilize integrated digital information systems that provide continuous access to transaction data. Consequently, administrative activities that were previously dominated by repetitive procedural tasks have gradually shifted toward analytical functions, service supervision, and organizational decision-making. This transformation illustrates that digital governance changes not only operational procedures but also the institutional logic through which public organizations manage financial resources (Ponte & Pesci, 2022; Faro et al., 2022; Di Giulio & Vecchi, 2023).

The findings further indicate that digital governance has substantially strengthened administrative control within local revenue management. Automated transaction recording, real-time monitoring, electronic reconciliation, and digital audit trails have improved transparency throughout the tax administration process while reducing opportunities for administrative errors. The availability of continuously updated financial information enables managers to identify operational problems more rapidly than under conventional administrative systems. Consequently, organizational decisions can be made using current empirical information rather than retrospective administrative reports. Nevertheless, the study also demonstrates that effective digital control remains dependent upon reliable technological infrastructure. Temporary network disruptions, synchronization delays, and system maintenance continue to require manual intervention, indicating that digital governance requires continuous investment in technological reliability alongside organizational adaptation (Caricato et al., 2022; Adepoju et al., 2022; Amin, 2025).

Institutional coordination also emerged as one of the defining characteristics of successful digital governance. The empirical findings reveal that digital revenue administration depends upon sustained collaboration among the Regional Revenue Agency, financial institutions, district governments, information technology units, and regional digitalization teams. Digital information systems have significantly accelerated communication, facilitated data exchange, and improved financial reconciliation among participating organizations. However, coordination extends beyond technological interoperability. Interviews consistently revealed that continuous communication, mutual trust, organizational commitment, and collaborative problem-solving remain indispensable for maintaining the effectiveness of digital public services.

Therefore, digital governance should be understood as a collaborative governance model in which technological integration complements institutional cooperation rather than replacing it. Another important finding concerns taxpayer adaptation to digital public services (Heuberger, 2022; Sukma & Yamnill, 2025). Although digital payment systems have significantly simplified tax administration, the adoption of electronic services remains uneven across different groups of taxpayers. Business taxpayers generally reported positive experiences because digital platforms reduced transaction costs, increased payment flexibility, and minimized administrative burdens. Conversely, several individual taxpayers indicated that limited digital literacy, unfamiliarity with electronic payment applications, and concerns regarding technological reliability continued to influence their preference for conventional administrative procedures. These findings suggest that technological availability alone cannot ensure successful digital transformation. Governments must simultaneously strengthen citizens' digital capabilities through continuous public education, technical assistance, and user-friendly service design to encourage broader adoption of digital public services.

The study also demonstrates that public trust constitutes a fundamental prerequisite for sustainable digital governance (Pandey, 2023; Luo et al., 2024). Participants consistently emphasized that transparency, transaction security, and service reliability significantly influence citizens' willingness to utilize digital tax services. Electronic payment systems improve transparency by providing immediate payment confirmation and comprehensive transaction histories that are accessible to both taxpayers and government officials. Such transparency strengthens accountability while reducing uncertainty regarding tax administration. However, interview findings indicate that technical interruptions and concerns regarding information security may reduce public confidence if they are not managed appropriately. Consequently, governments must ensure that technological innovation is accompanied by strong cybersecurity measures, transparent information management, and consistent service quality to maintain citizens' confidence in digital governance.

The integration of findings across all dimensions further demonstrates that digital governance represents a multidimensional process of institutional transformation rather than a series of isolated technological initiatives. Digital payment systems improve administrative efficiency only when supported by effective organizational coordination, reliable technological infrastructure, competent human resources, and public trust. Weaknesses within any one of these dimensions may reduce the overall effectiveness of digital governance because technological innovation operates within a broader institutional environment characterized by organizational interdependence and continuous interaction between government agencies and service users.

An equally significant contribution of this study concerns the relationship between technological innovation and organizational learning. Interviews with government officials consistently indicated that implementing digital governance required continuous adaptation in

administrative practices, employee competencies, and institutional culture. Public servants were required to develop new skills associated with digital information management, electronic communication, technical problem-solving, and service facilitation. These findings indicate that digital transformation should not be viewed as a one-time technological investment but rather as a continuous organizational learning process requiring sustained capacity development and institutional commitment. The success of digital governance therefore depends not only on the availability of advanced technology but also on the willingness of organizations to continuously adapt to technological and societal change (Xu et al., 2022; Vaia et al., 2022; Djatmiko et al., 2025).

From a policy perspective, the findings suggest that strengthening digital governance in local revenue administration requires a balanced strategy that combines technological development with institutional reform. Investments in digital infrastructure should be accompanied by improvements in system interoperability, organizational coordination, cybersecurity protection, digital literacy programs, and human resource development. Local governments should also establish mechanisms for continuous evaluation of digital service performance, enabling technical problems to be identified and addressed before they undermine public confidence. Such integrated strategies will contribute to creating more resilient digital governance systems capable of supporting sustainable fiscal administration.

Conclusion

This study demonstrates that the implementation of digital governance has significantly transformed the management of Local Own-Source Revenue (PAD) in Makassar City by enhancing administrative efficiency, strengthening institutional coordination, improving financial transparency, and expanding taxpayers' access to digital public services. The integration of digital platforms, including electronic payment systems and real-time transaction monitoring, has shifted local revenue administration from conventional manual procedures toward a more integrated, data-driven, and accountable governance model. The findings further indicate that the effectiveness of digital governance is determined not only by technological innovation but also by the capacity of government institutions to strengthen organizational coordination, maintain reliable digital infrastructure, develop the digital competencies of public officials, and foster public trust in digital services. Although the implementation has generated substantial improvements in service quality and financial management, challenges related to system interoperability, technical reliability, digital literacy, and cybersecurity remain important issues that require continuous attention. This study contributes to the growing body of knowledge on digital governance by providing empirical evidence from local fiscal administration, demonstrating that successful digital transformation depends on the interaction between technology, institutional capacity, and citizen engagement. From a practical perspective, the findings suggest that local governments should adopt an integrated approach that combines technological investment with organizational reform, inter-institutional collaboration, capacity building, and citizen-centered service innovation to ensure the long-term sustainability of digital governance in local revenue management.

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