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Digital Transformation Shapes a More Transparent and Accountable Public Financial System

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Abstract

Digital transformation in government has become a fundamental pillar in establishing efficient, transparent, and accountable public governance. The adoption of technologies such as big data, the Internet of Things, blockchain, and artificial intelligence has driven significant changes in national financial management systems. Through digitalization, governments are able to enhance budget management efficiency, accelerate reporting processes, and strengthen public oversight of fund utilization. This study employs a narrative study approach to examine the relationship between digital transformation, financial transparency, and the reinforcement of good governance principles. The findings indicate that the integration of digital technologies improves fiscal accountability and promotes public information openness, yet persistent challenges remain, including data security risks, disparities in digital literacy, and organizational resistance to change. With adaptive digital governance strategies and strong ethical frameworks for data management, governments can establish financial systems that are more transparent, efficient, and trustworthy in the era of artificial intelligence. The study highlights that successful digital transformation requires not only technological innovation but also institutional readiness, regulatory flexibility, and a commitment to fostering an inclusive governance ecosystem.

1. Introduction

The development of digital technology over the last two decades has triggered fundamental changes in the structure and practices of modern governance. Digital transformation is not only about the use of technology-based devices but also encompasses a paradigm shift in how governments manage information, formulate policies, and provide services to the public. The shift toward digital-based governance demands that governments become more open, responsive, and data-driven, where innovation serves as the main foundation for creating sustainable public value (Maulana et al., 2024). Therefore, digitalization must be understood as a strategic process that changes the working logic of the bureaucracy to be more adaptive and collaborative.

The concept of e-government, which initially focused on procedural digitalization and simplifying public services, has evolved into the digital governance approach. This approach emphasizes comprehensive integration between technology and government management mechanisms through the utilization of big data, the Internet of Things (IoT), and artificial intelligence (AI). The use of these technologies allows the government to process data quickly, increase information accuracy, and reduce dependence on manual processes that have historically characterized traditional bureaucracy. In the context of state financial management, digitalization plays a vital role in promoting transparency through the provision of real-time financial data, system-based monitoring mechanisms, and public information disclosure facilities accessible to the wider community (Adaramola et al., 2024).

Financial transparency is a fundamental element in realizing the principles of good governance (Hasanudin, 2023). An open, accurate, and integrated government financial system provides space for the public to assess the effectiveness of state budget utilization and ensure that public expenditure is carried out responsibly and in accordance with regulatory mandates. Digital technology has enabled the online publication of financial reports with higher data security standards and accelerated the information delivery process. Furthermore, data-driven auditing strengthens both internal and external oversight functions, thereby minimizing the potential for budget deviations and increasing the accountability of public institutions.

However, the transition to a digital financial system is not without complex challenges. Cybersecurity threats are a strategic issue that requires serious attention, given that increased digital activity also increases the risk of attacks on government systems. Additionally, the technology capacity gap between agencies and the limited ability of human resources to utilize digital technology often become obstacles in the implementation process. Bureaucratic cultural resistance that still maintains conventional work patterns, coupled with the low digital literacy of civil servants, further slows the acceleration of digital transformation (Leso et al., 2023). Thus, transformation efforts must be accompanied by strategic planning that includes infrastructure strengthening, policy reform, and continuous improvement of civil servant competence.

In further developments, artificial intelligence (AI) plays an increasingly important role in improving the quality of public financial governance. AI-supported predictive analytics systems are capable of identifying patterns of anomalous

transactions, detecting potential irregularities, and projecting fiscal risks more precisely. On the other hand, cloud accounting technology expands flexibility and effectiveness in the accounting process and financial reporting across agencies. Research by Tyma et al. (2022) shows that the integration of AI with cloud-based accounting systems can enhance reporting accuracy and strengthen the efficiency of financial processes in the public sector across various countries.

Thus, digital transformation in government is not merely a technological project but a structural reform agenda aimed at strengthening transparency, efficiency, and public accountability. The government is required to ensure that every digital innovation is based on the principles of openness, integrity, and public participation. When designed and implemented appropriately, digital technology has the potential to become an effective instrument in strengthening public trust, optimizing fiscal performance, and realizing governance that is more adaptive and results-oriented.

2. Literature Review

2.1. Digital Transformation and Governmental Paradigm Shif

Digital transformation in the context of governance marks a fundamental change from a traditional bureaucratic system to governance based on data, automation, and innovation. Digitalization has enabled governments to utilize big data, IoT, and AI technologies in managing public policies and improving the quality of services to the community. According to Hajar and Arma (2024), digital transformation is not only the application of new technology but an institutional

adaptation process that demands changes in culture, structure, and behavior of public organizations.

This evolution also transforms the e-government paradigm into smart governance, where the interaction between the government and citizens is no longer one-way. The public can now actively participate in overseeing public policies through transparent and responsive digital platforms. Blockchain technology, for example, is used to record government financial transactions permanently and immutably, thereby strengthening the principle of public accountability (Luna et al., 2024). Furthermore, the adoption of digital systems accelerates evidence-based decision making, strengthens coordination between agencies, and reduces administrative duplication that previously hindered bureaucratic efficiency.

Although this transformation presents significant opportunities, structural barriers and resistance to change remain significant challenges. Factors such as the limited digital literacy of civil servants, lack of technological infrastructure, and concerns about data security often slow down the implementation of digital policies. Therefore, digital transformation requires a comprehensive change strategy, covering organizational reform, increasing digital competence, and adaptive governance towards technological innovation (Anggara et al., 2024).

2.2. Financial Transparency and Public Accountability

Financial transparency is a fundamental principle in modern governance. Through the openness of budget information, the public has access to how public funds are allocated, used, and evaluated. The utilization of digital technology allows the financial reporting process to be carried out in real-time, thereby increasing

efficiency and reducing the potential for data manipulation. According to Hasanudin et al. (2024), the use of digital systems in fiscal reporting contributes to increasing public trust in public institutions. The implementation of open data platforms also strengthens community participation in overseeing fiscal policies. Open financial data provides opportunities for academics, journalists, and civil society to conduct independent analysis of budget effectiveness.

In addition, the digitalization of financial reporting supports internal accountability through automated auditing systems that can automatically detect inconsistencies between budget plans and realization. Nevertheless, digital transparency is not free from new risks. Challenges such as cybersecurity, the potential misuse of data, and limited access in areas with low infrastructure are serious concerns. For this reason, according to Saner et al. (2020), the success of digital transparency depends on three main factors: clear regulation, high public digital literacy, and strong data-driven monitoring mechanisms. Governments that are able to integrate these three factors will be more successful in building a transparent and accountable financial system in the digital era.

2.3. The Role of Artificial Intelligence and Financial Technology in Public Accounting

The development of artificial intelligence (AI) and financial technology (fintech) has brought a revolution to the government accounting system. AI functions in detecting transaction anomalies, predicting fiscal risks, and increasing the efficiency of public financial recording and reporting. According to Adaramola et al. (2024), the application of machine learning in public accounting systems is

capable of identifying fraud detection with a higher level of accuracy compared to manual methods. In addition, cloud computing-based accounting systems allow cross-agency financial management to be carried out with better coordination and maintained transparency. This technology facilitates access to financial data from various devices securely and efficiently. In the global context, the use of blockchain in recording public transactions is also starting to be adopted to create immutable financial records, which guarantees data integrity and prevents financial manipulation (Leso et al., 2023).

However, the successful integration of AI and fintech in public financial governance depends not only on technological sophistication but also on the readiness of human resources and supportive regulation. According to Henman (2020), the government must balance innovation with aspects of ethics and privacy protection so that the application of technology does not cause digital inequality. A collaborative approach between government, the private sector, and academic institutions is key to ensuring that technology can be utilized sustainably and fairly. The literature shows that digital transformation provides great opportunities to strengthen public transparency and accountability, but its success depends on strong digital governance, adequate data security, and human readiness to adapt to rapid technological change.

3. Methods

This study uses a narrative study approach as the main method to understand the dynamics of digital transformation in government and its implications for

financial transparency and public accountability. The narrative approach was chosen because it is capable of exploring meaning, experience, and the process of change that occurs in a deep social and institutional context. As explained by Giorgi (2020), narrative study focuses on how a phenomenon is understood through the stories and narratives constructed by the actors involved in it. In the context of this research, the narrative approach is used to analyze how the government builds, implements, and interprets policies for the digitalization of the financial system.

Narratives are constructed through analysis of policy documents, official reports, scientific publications, and relevant case studies of e-government and digital financial systems implementation over the last five years. Secondary data is obtained from verified academic sources, including scientific journals, international institutional reports, and government publications regarding digital governance and fiscal transparency. The research stages begin with the collection of literature and documents describing the journey of digitalization in the public sector. Then, a narrative coding process is carried out to identify main themes such as technological innovation, institutional challenges, digital ethics, and the role of artificial intelligence in financial accountability. The analysis is carried out interpretively using the thematic narrative analysis technique, where each narrative is analyzed based on context, actors, and the relationship between events (Nigar, 2020).

Furthermore, the results of the analysis are contextualized with the theory of government digital transformation and the principles of good governance. This aims to interpret the relationship between the financial digitalization narrative and the formation of public transparency and accountability. This approach provides space

for researchers to understand digital transformation not merely as a technological change but also as a complex social and organizational process. The validity of the research findings is maintained through triangulation of sources by comparing various narratives from academic literature and government practice reports. Thus, this narrative study method is expected to produce a comprehensive and contextual understanding of how digitalization affects public financial governance and shapes government accountability in the era of artificial intelligence (Giorgi, 2020; Nigar, 2020).

4. Results

The results of this study indicate that digital transformation in government governance has resulted in substantial changes to the quality of public financial management, especially in the aspects of efficiency, transparency, and accountability. Based on narrative analysis of various literature, policy reports, and empirical findings, it appears that the integration of digital technology such as big data analytics, Internet of Things (IoT), cloud computing, blockchain, and artificial intelligence (AI) has encouraged a reorientation of the paradigm from a manual and closed financial management model to a data-driven, open, responsive, and real-time connected model. This paradigm shift not only improves administrative performance but also influences the relationship between government and society through increased data accessibility and expansion of public oversight space.

Digitalization is proven to significantly increase financial bureaucracy efficiency. Governments that implement digital-based financial systems are able to

shorten various administrative processes, ranging from budget planning, transaction verification, financial recording, to reporting and auditing. Processes that previously required a long time due to reliance on manual workflows can now be completed much more optimally through automation systems. This is in line with the findings of Kim et al. (2022), which show that the use of digital platforms in bureaucratic governance can increase the speed and accuracy of public services. This efficiency is not only related to work acceleration but also the reduction of document redundancy, decreased operational costs, and improved coordination between agencies through system integration and data format standardization.

In addition to efficiency, digitalization also contributes significantly to improving the quality of government financial data. The implementation of cloud accounting, data lakes, and inter-agency system integration allows every public transaction to be recorded uniformly, automatically monitored, and stored in a centralized database. This condition drastically reduces the potential for human error due to manual recording processes, while increasing the reliability of data used for preparing financial reports and formulating fiscal policies. This higher data consistency provides a strong foundation for supervisory institutions to carry out more accurate data-driven audits, and allows evaluation of government programs to be carried out more timely and evidence-based (Azure et al., 2024).

Transparency is one of the strongest transformational results of digital technology implementation in the public financial sector. Governments that adopt open financial data systems can present data regarding budget allocation, expenditure realization, development activities, and other fiscal indicators openly

and easily accessible. Access to public financial data is no longer limited by convoluted bureaucratic layers, because the public, media, academics, and monitoring institutions can download data directly through official government platforms. According to Kim et al. (2022), countries that consistently implement open data tend to have a higher level of public trust, because the public can assess government performance objectively based on available data. The presence of this more open financial transparency platform also strengthens the mechanism of public participation in overseeing fiscal policies and encourages the formation of a more democratic deliberation space in state financial affairs.

In the realm of accountability, the utilization of artificial intelligence (AI) is a major catalyst that encourages the creation of a more sophisticated and effective financial monitoring system. AI has the ability to identify unusual transaction patterns, detect fiscal anomalies, and provide early warning of potential budget irregularities through predictive analytics techniques. The findings of Leso et al. (2023) show that machine learning algorithms increase the accuracy of fiscal irregularity compared to conventional audit methods. This shows that AI can be an important instrument in strengthening the integrity of public financial management, especially in preventing corruption and administrative errors. Besides AI, blockchain technology also plays a strategic role in strengthening accountability because every transaction recorded on the blockchain is permanent, transparent, and cannot be changed without leaving a digital trail. This characteristic ensures that the entire financial process can be clearly traced, thereby encouraging the creation of an accountability system that is automatic and independent of human intervention.

The research results also show that digital technology encourages significant changes in audit patterns. Audit systems that were previously periodic and manual can now evolve towards a continuous auditing, self-regulated auditing model. With real-time data integration, supervisory institutions can focus on strategic analysis and long-term fiscal risk evaluation rather than merely verifying administrative documents. Data-driven audit systems also facilitate the development of more comprehensive fiscal performance indicators, so that the government can respond to various potential risks proactively (Luna et al., 2024).

However, this study also identifies that the benefits of digitalization cannot be optimally realized without overcoming a number of crucial challenges that arise in the implementation process. Cybersecurity risk is the most prominent issue given the increasing number of digital attacks targeting government financial systems. Cyber attacks not only have the potential to steal or damage data but can also erode public trust in the government's ability to manage digital systems. Other challenges relate to the gap in digital literacy among employees, the unpreparedness of technological infrastructure in several agencies, and the cultural resistance of the bureaucracy that is still reluctant to make changes. Leso et al. (2023) affirm that digital transformation will not succeed without the support of an organizational culture open to innovation and leadership capable of driving change consistently.

In addition to technical and institutional challenges, ethical aspects are also an important concern in the implementation of digital technology. The utilization of AI and big data in public finance can raise issues related to privacy, data protection, and algorithmic justice which can create new inequalities in public governance. Public

financial data in some cases contains sensitive information, so strict regulation is needed to ensure that the use of technology does not violate individual rights. Henman (2020) emphasize that the application of the ethical AI principle is highly necessary to guarantee that the use of technology in the public sector remains within the corridor of moral accountability and does not cause injustice in decision-making.

The research results show that digitalization makes a significant contribution to improving the quality of good governance through strengthening transparency, participation, and accountability. Transparency increases through the openness of financial data; public participation strengthens because the public has greater opportunities to access information and provide input on fiscal policies; while accountability is strengthened through a data-driven monitoring system that is more objective and sustainable. The integration of digital technology in public financial management not only creates bureaucratic efficiency but also strengthens government legitimacy and expands the democratic space in fiscal oversight (Azure et al., 2024).

5. Discussion

The results of this study indicate that digital transformation in government contributes significantly to strengthening financial transparency and increasing public accountability. Nevertheless, the effectiveness of digitalization is heavily influenced by the readiness of government institutions to adopt technology, the availability of regulation that is responsive to change, and the capacity of human resources who are able to adapt to the digital dynamics. The digitalization of public

financial management is essentially not only related to the application of new technological devices but also concerns the process of social and cultural adaptation of the bureaucracy to align with the principles of good governance.

One of the main findings emerging from this study is that the utilization of technology such as blockchain, artificial intelligence (AI), and cloud accounting has the potential to increase efficiency and accuracy in public financial management. This finding is consistent with the statement by Hajar and Arma (2024), who affirm that digital technology acts as a catalyst in transforming public value by strengthening data transparency, information integration, and inter-agency collaboration. In the context of state financial management, the utilization of this technology creates automated monitoring mechanisms that are capable of suppressing the possibility of deviations, while strengthening fiscal accountability through more accurate and documented transaction recording.

However, this research also reveals a sharp gap in the application of financial digitalization among government agencies. Institutions with better technological capacity tend to show rapid progress, while agencies that have limited infrastructure, low digital literacy, and minimal budget for digital modernization move slower. Another challenge in the form of concerns about data security and the risk of cyber attacks is a factor that slows down the digital adoption process. These findings are in line with the views of Anggara et al. (2024), who emphasize that the success of government digitalization requires an adaptive strategy that places human capacity building and a culture of innovation as main components, in addition to strengthening digital infrastructure.

From an ethical and public policy perspective, the utilization of AI and big data in the financial system presents new challenges that need to be addressed carefully. Although this technology can increase efficiency and the quality of data analysis, there is a risk related to information misuse, privacy violations, and algorithmic bias that can create new inequalities in public governance. Therefore, the application of AI must be based on the principles of algorithmic transparency, accountability, and protection of sensitive data. This is in line with the view of Henman (2020), who state that good digital governance requires the integration of ethical aspects in every implementation stage so that public trust can be maintained.

In addition, this study confirms the importance of multi-sector collaboration in strengthening the digital governance ecosystem. Collaboration between government, academics, and the private sector is needed to create a sustainable innovation framework, expand technological capacity, and ensure that digital transformation is inclusive. Luna et al. (2024) emphasize that the participation of various actors in the development of the digital ecosystem helps reduce the digital divide and expands the social impact of government innovation. Public financial digitalization will succeed if it is able to integrate technological innovation with the principles of transparency, participation, and social accountability. Governments that implement a holistic approach by combining technological, ethical, regulatory aspects, and strengthening digital capacity will be better able to build a financial governance system that is open, efficient, and trusted by the public in the era of AI-based governance.

6. Conclusion

Digital transformation in government has become a fundamental element in realizing transparent, accountable, and efficient governance in the era of artificial intelligence. The integration of technologies such as big data, the Internet of Things (IoT), blockchain, and artificial intelligence has accelerated the digitalization of public financial systems, increased the reliability of fiscal reporting, and strengthened public oversight of budget utilization. However, the success of this transformation is heavily influenced by the readiness of human resources, regulatory adaptation, and institutional capacity to manage digital risks.

The results of the study indicate that digitalization is able to create new public value by increasing participation, efficiency, and transparency in state financial management. Nevertheless, challenges such as the digital literacy gap, bureaucratic resistance, and data security threats remain obstacles that need to be overcome through adaptive policy strategies and increased technological capacity. The government must balance digital innovation with principles of ethics, privacy protection, and accountability so that public trust is maintained. Therefore, digital transformation is not only a technological change but also a transformation of public governance culture and paradigm. With an integrated, collaborative, and public value-oriented approach, the digitalization of government finance can become a strong foundation toward open, participatory, and sustainable governance in the digital era.

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