

**DIGITAL PUBLIC FINANCE AS A GOVERNANCE TOOL: IMPLICATIONS OF TRANSPARENCY AND EFFICIENCY IN EMERGING ECONOMIES****Nasiba Turaeva Jumakulovna**

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**Abstract:** The paper explores digital public finance as a governance system in developing economies, filling an information gap on the institutional environment for digitalization, as identified in existing literature on the topic. Through an integrative literature review, this paper combines existing frameworks and empirical studies on digitalization and institutional theory, specifically on developing economies globally.

The paper finds that digitalization, as a system of e-budgeting, e-procurement, and artificial intelligence forecasting, improves transparency and efficiency through real-time information accessibility, standardization, and oversight. However, it depends on institutional capacity, regulatory frameworks, digitalization, and human capital. Emerging economies are more likely to have hybrid approaches, where digitalization coexists with traditional approaches.

The paper focuses on integrating digitalization reforms in public finance with overall governance system reforms.

The research contributes to redefining digital public finance as an institutional system of governance, particularly for developing economies globally.

**Keywords:** Digital Public Finance, Governance, financial management, emerging economies, efficiency, transparency, Artificial intelligence in the public sector

**1. Introduction**

The process of digitalization has become characteristic of modern-day public sector reform, which has fundamentally transformed the ways governments design, operate, and control public financial systems. The last few years have seen tremendous transformation of the classic patterns of managing finances in the government because of the fast-rising digital technologies i.e., data analytics and artificial intelligence (AI), integrated financial management systems. The changes have been increasing at a higher pace in support of increasing demands in fiscal transparency, accountability and efficiency, especially in emerging economies where there are complex governance pressures and resource limitations. With increased pressure on public institutions by citizens, international bodies and investors to meet their demands, digital public finance has been increasingly being packaged not as a technical upgrade, but as a strategic tool of governance.

Digital public finance governance is a groundbreaking strategy of managing the financial system that uses digital technologies to improve transparency, efficiency, and accountability in the financial system. An expanding amount of the empirical literature shows that digitalization empowers governments with the means to enhance fiscal transparency, streamline the administrative system, and minimize such possibilities of mismanagement and corruption. As an example, Krynysia et al. (2024) indicate that the use of digital financial technologies is able to create considerable economic and social benefits, such as enhanced transparency and increased effectiveness in distributing the state funds. Similarly, Kovalenko and Sikalo (2024) pinpoint the



following benefits of digital public finance systems: automatization, better forecasting, and the increased ability to detect financial anomalies due to the use of big data and artificial intelligence.

In addition to the operational effectiveness, there have been other positive outcomes of digitalization, which have been directly connected to the overall governance. Digital technologies allow real-time monitoring of unspent funds of the state, automatic monitoring of financial operations and open data platforms allow disseminating fiscal information. These mechanisms drastically lower information asymmetry among governments and stakeholders giving more strength to accountability and enhanced trust by the populace. This relationship is supported with empirical evidence. Zhuk et al. (2023) prove that digital platforms can speed up the financial processes great deal, and Matviienko et al. (2021) emphasize better resource distribution and lower corruption levels as a result of digital financial management systems. Altogether, these papers indicate that digital public finance has the potential to be a structural facilitator of good governance as opposed to being an efficiency-enhancing tool.

Digital public finance governance is especially relevant in the emerging economies where the institutional capacity constraints, fragmented financial system and poor mechanisms of oversight tend to compromise fiscal performance. The promotion of digital government initiatives has been overwhelmingly used to address these challenges by enhancing coordination of an institution and excellent service delivery. In a systematic review of digital government research, Mulenga (2025) reports that e-government platforms and digital financial systems can be considered as the key elements of the reforms strategy of the public sector and in particular in Sub-Saharan Africa and in the developing countries. The empirical evidence presented by Castro and Lopes (2021) also supports the strategic value of digitalization in the governance reform agenda as digital government initiatives are more likely to be successful, thus producing sustainable development outcomes.

The United Nations Conference on Trade and Development published the World Investment Report 2024 in which it is highlighted that the digital government programs can help to overcome the institutional deficits that have existed since the dawn of time by lowering the financial expenses of the administration, improving transparency, and fighting corruption. The report highlights that digital public finance systems are becoming a key priority in the view of contemporary governance, especially in economies that are trying to find favour in the eyes of investors and enhance credibility of their public sectors.

Along with such promising trends, the literature also notes that there are still ongoing challenges that make the process of the digital public finance systems implementation difficult. The lack of digital literacy, high infrastructure and maintenance expenses, cybersecurity threats, and disparate institutional preparedness are still not allowing successful adoption. Binti Yahya et al. (2025) reiterate that digital public finance reforms must have a full system of governance incorporating technology protection, institution supervision, and practices. In the absence of these frameworks, digitalization may only prolong the existing inequalities or cause new vulnerabilities to be developed in the financial system of the populace.

Although the empirical literature is quite clear on the fact that digital technologies can be used to improve transparency and efficiency in public finance, there are still some research gaps. First, available research tends to analyze digital tools one by one, i.e., a particular application like e-procurement or digital taxation, but does not put these tools in sufficient context of governance and institutional structures. Second, a large part of the literature focuses on technological capabilities and insufficiently theorizes the governance that enables digital public finance to generate transparency and accountability effects. Third, systematic conceptual



analyses that combine institutional conditions and dynamics of governance are scarce, although emerging economies are often mentioned as some of the greatest beneficiaries of digital reforms in the public finance.

To address these gaps, this paper takes the governance-focused approach to digital public finance. The study theorizes digital public finance as an institutional governance mechanism to change the relationships between the public authorities, financial systems and stakeholders instead of viewing digitalization as a purely technical process. This article seeks to examine how digital public finance can help to enhance transparency and efficiency within the management of public finances, and the focus on how these outcomes are influenced by the institutional and governance context in emerging economies.

The value of this research is three-fold. First, it assembles piecemeal strands of literature on the topic of digital public finance, digital governance, and institutional theory into an analytical framework that makes sense. Second, it contributes to a governance-focused perspective on digital public finance as it brings out the processes by which digital tools affect transparency and efficiency. Third, it provides information about policies that can be of interest to emerging economies that need to take advantage of digitalization as an element of larger modernization policies in the public sector. In such a way, the article puts digital public finance not in the category of administrative reform, but of a pillar of the modern governance that is essential.

## 2. Conceptual and Theoretical Framework

Digital public finance governance has a foundation in mainstream theoretical advances in digital governance, public value theory and institutional theory. Collectively, these views will constitute a sound conceptual basis of the impacts of digital technologies on redefining the results of financial management and governance by the population. This section combines the implications of the digital era governance, theory of transparency and accountability, and institutional theory to conceptualize the digital public finance as a governance system, but not as an entirely technical innovation.

### Digital Governance and Digital Era Governance 2.1.

The conceptual framework of digital governance theory represents the incorporation of digital technologies within the organization of the public sector as an innovative form of changes in how the state functions, the way of interaction with citizens, and the way of generating the value of the people. The authors Tarfing et al. (2020) express the term Digital Era Governance and identify three fundamental facets: the re-integration of fragmented services of the populace, needs-based holism, and comprehensive digitalization of administrative operations. In this light, digital technologies are not the means of automation but the means of restructuring government operations based on the needs of citizens and the results of policies.

On the basis of this, Vigoda-Gadot and Mizrahi (2024) suggest a threefold model of interaction, which investigates the dynamic interaction between humans, machines, and organizations. This model brings into focus the complexity of the process of digital transformation, and it focuses on the idea that the technological change is in interaction with organizational cultures, professional norms, and governance structures. In such a context of public finance, this interaction creates an effect on the digital system and its impact on budgeting, expenditure control and financial accountability.

Misuraca et al. (2014) also add to the interpretative framework based on the public value drivers, such as performance, openness, and inclusion. This model is especially applicable in



digital public finance because financial transparency and accountability are central elements of the establishment of values in the publics. According to Milakovich et al. (2021), digital governance needs to introduce significant shifts in the relations between the government and the citizens and transition to more participatory and networked forms of governance than more hierarchical bureaucratic ones. An example of this shift in the form of digital public finance systems is the use of open budget portals and real-time expenditure dashboards that provide more access to fiscal information to the citizenry.

## 2.2 Public Finance Transparency and Accountability.

Innermost ideas in the theory of public financial management and governance are transparency and accountability. Transparency allows stakeholders to access, interpret as well as examine the financial data whereas accountability also holds the public officials accountable to financial decisions and results. The digital technologies have greatly transformed the process by which transparency and accountability are realized.

The empirical studies give substantial evidence on the position of digitalization in increasing transparency. Pratiwi and Kusumawati (2024) discover that financial reporting transparency boosts the confidence of the population by enabling stakeholders to have easy access and interpret fiscal data. The same is stressed by Taouab and Ameer (2018), who state that transparency is becoming a fundamental principle of good governance that allows people and governments to have a better understanding of the financial processes.

Transparency is operationalized using digital tools in a number of different ways. As illustrated by Panggeso (2024), reporting transparency is facilitated by digital technologies because they help standardize the financial information and minimize the chances of manipulation. According to Sari and Muslim (2023), such mechanisms as regulatory frameworks, auditing practices, and digital transformation have connections with each other and support transparency and accountability. Natision et al. (2022) also demonstrate that public accountability is a key factor in the effectiveness of financial management system, and transparency is not enough to improve the situation without institutional measures to control and enforce it.

## 2.3 Digital Public Finance and the Institutional Theory.

The institutional theory is a critical perspective of why and how digital reforming the public finance is adopted and implemented in various governance settings. The institutional theory considers the importance of regulative, normative, and cognitive pressures to influence the organizational behavior instead of considering digitalization as a neutral or inevitable process.

Through the example of institutional pressures, Bennich (2023) shows that digitalization can be propelled by institutional pressures even in industries where market forces are not a competitive force, as demonstrated by regulatory mandates and normative expectations. According to Soderstrom and Melin (2019), to be successful in digital government innovation, there has to be a balance between formal institutional arrangements and informal norms and practices, which is especially relevant in situations of public finance reforms.

These dynamics are further expounded in recent research. Agyei-Ababio et al. (2023) demonstrate that regulative factors, such as legislation and official regulations, are the significant factors that affect the introduction of digital systems in the public sector. Chengxuan Geng et al. (2024) also note that normative and cognitive institutional pillars are critical elements in the process of technological adoption and that shared beliefs and professional norms can either



facilitate or limit digital transformation. Breaugh et al. (2023) emphasize the importance of collaborative leadership and institutional design as the means of getting digital government projects to survive the resistance to change and become sustainable.

Combined, the institutional theory demonstrates that the efficiency of digital public finances systems is not only a technology capacity, but also the compatibility of the institutional frameworks, governance principles, and organizational behaviours. This point of view is especially applicable to the emerging economies, where heterogeneity of institutional forms and capacity constraints may have a substantial effect on the results of reforms.

## 2.4 Analytical Implications

This paper will conceptualize digital public finance as a form of governance mechanism that is incorporated into the intricate institutional settings by incorporating the digital governance theory, transparency and accountability structures, and institutional theory. Digital technologies have the potential of increasing transparency and efficacy but the effect of these technological advancements depends on governance structures, institutional capacities and normative expectations. This combined theoretical framework forms the basis of analyzing the governance outcomes, challenges and policy implications of digital public finance in later sections of the article.

## 3. Digital Public Finance Mechanisms and Tools

Digital public finance is operationalized through a range of tools and systems that collectively reshape how governments plan, allocate, monitor, and control public resources. Rather than functioning as isolated technological upgrades, these tools form an integrated governance infrastructure that enhances transparency, efficiency, and accountability across the public financial management cycle. This section examines three core mechanisms—digital budgeting, e-procurement systems, and artificial intelligence-based financial forecasting—highlighting both their governance contributions and implementation constraints.

### 3.1 Digital Budgeting and Fiscal Planning

Digital budgeting represents a fundamental shift in public sector financial management, transforming budget preparation, execution, and monitoring processes through the use of advanced digital technologies. By integrating cloud computing, data analytics, and automated reporting systems, digital budgeting enables governments to move away from fragmented, paper-based processes toward real-time, data-driven fiscal governance.

Empirical evidence strongly supports the transformative potential of digital budgeting systems. Chima et al. (2024) outline a strategic framework for digital capital planning that emphasizes the role of artificial intelligence, cloud infrastructure, and data analytics in improving budget formulation and long-term fiscal planning. Their findings indicate that digital budgeting tools enhance the accuracy of expenditure projections, support scenario-based planning, and improve coordination across government units. Similarly, Krynysia (2024) identifies “digital dividends” associated with digital budgeting reforms, including increased fiscal transparency, improved monitoring of public expenditures, and more efficient allocation of public resources.

From a governance perspective, digital budgeting strengthens transparency by enabling real-time access to budgetary data for both internal decision-makers and external stakeholders. Automated systems reduce delays in reporting and limit discretionary manipulation by



standardizing data inputs and financial classifications. These features enhance accountability by making deviations from approved budgets more visible and traceable. Moreover, digital budgeting facilitates performance-based management by linking financial allocations to programmatic outcomes, thereby supporting evidence-informed policymaking.

Despite these advantages, the literature consistently emphasizes that digital budgeting reforms face significant institutional and capacity-related challenges. Effah and Nuhu (2017) identify outdated legal frameworks and entrenched paper-based administrative cultures as major barriers to implementation. In many public institutions, legacy regulations continue to mandate manual documentation and approval processes, undermining the efficiency gains offered by digital systems. Dwiyantri and Prayudi (2025) further highlight infrastructural limitations and insufficient technical capacity as persistent constraints, particularly in developing and emerging economies.

These findings suggest that digital budgeting cannot be understood solely as a technological intervention. Its effectiveness depends on complementary institutional reforms, including updates to legal frameworks, investment in human capital, and organizational change management. Without addressing these factors, digital budgeting systems risk becoming parallel structures that coexist with, rather than replace, inefficient traditional practices.

### 3.2 E-Procurement Systems and Transparency in Public Spending

Public procurement represents one of the most corruption-prone and financially significant areas of public finance. As a result, e-procurement systems have emerged as a central digital governance tool aimed at increasing transparency, enhancing accountability, and improving efficiency in public spending. By digitizing procurement processes—from tender announcements to contract awards and payments—e-procurement platforms reduce information asymmetries and limit discretionary decision-making.

Empirical studies provide strong evidence of the transparency-enhancing effects of e-procurement systems. Ahmad et al. (2021), examining Malaysia's e-procurement platform, report that the system disclosed 73.91% of established transparency indicators, significantly improving access to procurement information. In the case of Surabaya, Novitaningrum (2024) finds that e-procurement implementation strengthened accountability by improving both vertical reporting to oversight authorities and horizontal transparency to the public. These outcomes demonstrate how digital procurement platforms can institutionalize transparency by embedding disclosure requirements directly into system design.

From a governance standpoint, e-procurement systems contribute to accountability through standardized procedures, automated audit trails, and publicly accessible procurement data. Digital records reduce opportunities for informal negotiations and selective disclosure, while time-stamped transactions enable more effective monitoring and post hoc audits. These features align procurement practices with broader principles of good financial governance.

However, the literature also cautions against assuming uniform effectiveness across contexts. Khorana et al. (2024) demonstrate that the transparency gains associated with e-procurement depend critically on institutional quality and digital infrastructure. In environments characterized by weak regulatory enforcement or unreliable technological systems, e-procurement platforms may fail to deliver expected governance outcomes. Ditari et al. (2018) further highlight that trust plays a decisive role in shaping perceptions of transparency, suggesting that digital systems alone cannot compensate for broader deficits in institutional credibility.



Importantly, e-procurement is not a self-sufficient anti-corruption solution. Novitaningrum (2024) emphasizes that digital procurement systems must be supported by strong ethical standards, effective law enforcement, and independent oversight mechanisms to prevent new forms of fraud or manipulation. These findings reinforce the argument that digital public finance tools function most effectively when embedded within robust governance frameworks.

### 3.3 Artificial Intelligence in Public Finance Forecasting

Artificial intelligence has increasingly been applied to public finance forecasting, offering governments advanced analytical capabilities for predicting revenues, expenditures, and fiscal risks. AI-based models leverage large datasets and complex algorithms to identify patterns that are often overlooked by traditional forecasting methods, thereby enhancing strategic financial planning.

The empirical evidence on AI-driven forecasting is particularly compelling. Ren (2025) finds that the adoption of AI technologies can increase budget forecast accuracy by 20–30%, with Random Forest regressors achieving validation accuracy rates of up to 91.4%. Sulistiani et al. (2025) report even higher predictive performance, with hybrid AI models reaching 93.2% accuracy and significantly outperforming conventional statistical approaches. These improvements have important governance implications, as more accurate forecasts enable better fiscal discipline, reduce unexpected budget deficits, and support long-term policy planning.

Beyond accuracy, AI-based forecasting systems contribute to transparency and accountability by making assumptions and predictive variables more explicit. Automated models can document data sources, calculation processes, and forecast revisions, thereby improving traceability in budget preparation. Drăgulin et al. (2025) emphasize that, when properly implemented, AI systems can enhance both forecast transparency and accountability by reducing discretionary adjustments and enabling systematic evaluation of forecasting performance.

However, serious risks and limitations of AI adoption in the sphere of public finance are also mentioned in the literature. According to Ren (2025), the data privacy issue is observed to influence about 40 percent of AI projects in the sphere of public finance, which presents the fiscal and taxpayer data as a sensitive factor. Algorithms are also prone to algorithmic bias, low quality of data, and high implementation costs that make their adoption more challenging, especially when using them in resource-limited institutions. According to the authors of Dragulin et al. (2025), AI should be properly adjusted to organizational capabilities and governance frameworks to prevent dependence on the outputs of the automated system. One of the main regularities of the literature is that AI is not supposed to be treated as a substitute to human judgment in the process of making decisions regarding the public finances. Rather, AI has been used the most as a decision-support tool that supplements professional knowledge and institutional control. Together, these examples of digital budgeting, e-procurement, and AI-based forecasting demonstrate the collective impact of digital public finance tools on creating a system of governance infrastructure that redefines the way the government operates with regard to finance. These tools improve transparency due to real time availability of data, standard processes and automated tracking systems. They enhance efficiency by cutting administrative overhead, hasten the decision-making process and allow more precise fiscal planning. Meanwhile, their efficiency is intermediated by organizational circumstances, such as legal systems, organizational abilities, and the principles of governance. This literature has consistently shown that digital public finance solutions achieve the most positive effects on governance when established as component reform packages, as opposed to technological initiatives. Digitalization does not in any way end the governance challenges; it only changes the



institution of transparency, accountability and efficiency in the public finance. This understanding forms a critical ground on which to analyze the results of governance and the problems later.

#### 4. Governance Outcomes of Digital Public Finance

Digital reforms of the public finances are currently considered as not only the measure of the technological adoption, but the measure of the results of the governance. Among the mentioned consequences, transparency and efficiency have become the most studied and empirically validated dimensions. This section summarizes the global empirical studies in order to estimate the effects of digital public finance to transparency and efficiency of the public financial management as well as determine under what conditions these effects are achieved.

##### 4.1 Digital Public Finance and Transparency Results.

Sound public financial governance is based on the principle of transparency, which makes it possible to control, be accountable, and to be trusted by the population. The emergence of digital technologies has profoundly changed the nature of the operationalization of transparency in the realm of public finance because it has advocated real-time access to information, standardized reporting, and processes of automated control. Empirical data in various countries have proven that digitalization is closely and positively related to financial transparency. There are especially strong arguments based on large-scale cross-national studies. Bisogno et al. (2022), who examined data regarding 97 countries in the 2008-2017 timeframe, prove that e-government initiatives affect the situation statistically significantly and directly on budget transparency. According to their findings, digital platforms institutionalize transparency by integrating disclosure practices into the normal financial management practices, and disregard the use of discretionary reporting practices. This macro-level fact supports the thesis that digital reforms in the public finance can generate systemic benefits in transparency, but not local benefits. System-level and country-specific research goes further to explain how digital tools help in improving transparency. Kovalenko and Sikalo (2024) analyze platforms with digital expenditure including ProZorro and discover that technological integration is a high-value element enhancing accountability and trust among the population in expenditure matters. Their article emphasizes that enhancement of transparency is not restricted to the availability of information only, but also to the clarity, traceability, and credibility of financial information. Digital platforms give the stakeholders a chance to monitor transactions on a real-time basis, compare planned and actual spending, and detect irregularities better than the traditional systems. Various transparency mechanisms are usually found across the empirical literature. These are real-time access of financial information, elimination of human error of financial reporting by automation, greater public scrutiny by open data portal, and greater transparency of the budget forming and execution process. All these mechanisms lower information asymmetries among authorities and stakeholders, in turn, enhancing accountability relationships in the system of public finance. Nevertheless, the literature also points out that it is not automatic and uniform that transparency gains. According to Krynytsia (2024), the issue of digital illiteracy, structural constraints, and cybersecurity threats that can derail the transparency results remain persistent. Transparency can be formal, and not substantive, in situations where the users are not skilled to interpret digital financial reporting or when the systems have failed to perform their intended roles. These results highlight the fact that digital transparency is relative to overall technological, social, and regulatory circumstances. Notably, empirical research indicates that the highest possible outcomes of transparency can be achieved when digital public finance reforms are introduced within an overall governance strategy. The technological solutions should be supplemented with regulatory frameworks, which require disclosure, institutional protection that safeguards data



integrity, and participatory mechanisms that can allow meaningful involvement of the population. In the absence of these support systems, digital tools are likely to only cement the existing power imbalance and not democratize financial information.

#### 4.2 Public Financial Management Digitalization and Efficiency.

Effectiveness is a second fundamental governance outcome that is linked with the digital reform of the public finance. Digital technologies can make the administrative processes more efficient by simplifying the transactions, cutting down the costs of transactions, increasing the speed of decision-making, and facilitating the fiscal planning to be more accurate. Empirical studies give substantial support to the idea that digitalization leads to the quantifiable efficiency gains in the organizations within the framework of the public sector. The quantitative research outlines significant efficiency gains that are linked to digital transformation projects. Amirova et al. (2025) identify a positive correlation between the implementation of digital systems and service quality in the public sector is high and regression analysis shows that the effect is significant ( $b = 0.4058$ ,  $p = 0.001$ ). According to their results, departments that implemented digital financial systems also achieved efficiency gains of up to 25.1 which is equivalent to processing time reduction, administrative load, and operation inefficiency. These findings indicate that effective digital public finance reforms can lead to physical performance improvement. The fact that the implementation of digital technology is a critical factor of transformation in the public sector is supported by the study by Nurfadilah and Haliah (2024), who state that the success of digital technology implementation depends on the awareness levels across various sectors. Their research lays stress that digital systems are able to improve coordination between different units of the organization and bring uniformity in financial management practices. Simultaneously, they warn that the benefits in efficiency are mitigated by the organizational capacity, especially the access to digital skills and managerial competencies.

Fischer et al. (2021) present a wider angle, as their systematic review of 93 empirical studies indicates that the research on digitalization in the public sector is dominated by efficiency and performance indicators. In their analysis they suggest that digital reforms would work best when they are strategically focused and have proper technological readiness. On the other hand, the poorly conceived digital efforts may be less efficient or cause new inefficiencies with the system fragmentation or user resistance. Efficiency gains related to a digital public finance are not limited to cost reduction in terms of governance. Digital systems also make budget execution faster, cash management better and financial reporting more timely which improves fiscal discipline and policy responsive ways. The automatization of the processes leads to the minimization of the use of manual interventions and, hence, the possibility of the delay of the processes and their manipulation. However, the literature is also adamant against making assumptions of linear efficiency gains. Digital divisions, inadequate infrastructure and skills gaps may limit improvements in performance, especially in the developing economies. Struggles imply that the effectiveness of outcomes relies on the coordination of technological systems and organizational formats and human abilities.

#### 4.3 The Digital Tools and the Changing Financial Governance.

In addition to transparency and efficiency as the isolated consequences, digital public finance tools are also seen as the catalysts of more widespread changes in financial governance. The sophisticated digital technologies, such as artificial intelligence, machine learning, and blockchain-based solutions, will allow making public financial management more proactive, predictive, and integrated. Singh (2025) shows that digital tools are essentially changing the financial governance landscape by automating regular activities, facilitating real-time monitoring,



and strengthening compliance controls. The technologies help in perpetual monitoring as opposed to carrying out periodic audits and thus enhance preventive checks in the systems of public finance. Predictive analytics also help governments to foresee the risks associated with fiscal standings and are better placed to react to challenges as they arise. Britchenko (2025) mentions a transformation of reactive to proactive governance models that are made possible with the help of digital public finance tools. Instead of reacting to financial anomalies when they happen, digital systems allow identifying them early and preventing the risks due to ongoing analysis of data. Such a shift has profound consequences in the field of accountability, since it re-conceptualizes the timing and the content of oversight mechanisms. Simultaneously, the literature emphasizes that such effects of transformative governance depend on successful implementation. According to Bagherifam et al. (2025), cybersecurity threats, the lack of digital skills, and organizational resistance are the primary challenges to the complete governance capabilities that digital tools can offer. The advanced digital systems can bring in new weaknesses or make the prevailing institutional flaws worse without sufficient protection.

Synthesis of Governance Outcomes

## 5. Governance Challenges and Risks of Digital Public Finance

Although digital public finance is associated with vast opportunities to improve transparency, efficiency, and accountability, in the body of empirical literature, the introduction of digital transformation is always accompanied by a list of ambiguous governance issues. These issues are not just technical concerns but also include the cybersecurity threats and adapting to the regulations, ethical aspects of artificial intelligence, and the digital divide. These risks should be understood so as to determine the sustainability and equity of digital public finances reforms.

### 5.1 Technological and Regulatory Issues.

Technological vulnerability and regulatory complexity is one of the most notable issues in the digital realm of governance of public finances. Recent research highlights that the growing dependence on the digital systems poses a threat to the financial management of the people, particularly data breaches, manipulation of the systems, and disruption of the services. According to Jin (2024) and Ariyadi and Akbar (2025), the risk of cybersecurity has emerged as one of the major concerns, especially when the financial data is centralized and interlinked on government platforms.

Along with cybersecurity, there is also an issue of inequality in digital capabilities and the unequal access to technology, which is a considerable challenge in governance. Mokadam et al. (2025) demonstrate that digitalization in the public sector tends to be uneven as more powerful institutions tend to receive disproportionately more benefits of digital reform than weaker institutions struggle to adapt. These differences compromise uniformity and dependability of digital systems of public finances, which may diminish the general performance of governance.

Another problematic issue is regulatory adaptation. Reforms in digital public finance often move ahead of current legal and regulatory systems, bringing uncertainty to issues of data governance, accountability and compliance. Ariyadi and Akbar (250) note the challenge of balancing old rules in the regulation of the public finance with the emerging digital technologies. The lack of updated regulations can make digital systems act in the gray areas of the law, which can be more risky to the institutions and less likely to attract the community.

Notably, the literature stresses the fact that these difficulties are not the technical local problems but the manifestations of the institutional and governance limitations. According to Piccoli (2017), the reform of digital governance often demands the necessity to change the



organizational culture, inter-agency coordination, and policy formulation fundamentally. The inability to cover these structural dimensions may lead to disjointed implementation and low impact of reform.

### **5.2 Public Finance and Ethical Risk and Artificial Intelligence.**

The increased application of artificial intelligence in taxation creates a unique range of ethical and governance issues. Although AI-based systems can be used to improve the accuracy of forecasts, risk detection, and process automation, they also have the issues of bias in the algorithms, transparency, and undermining human discretion in decisions.

The recent research offers strong proof of these dangers. Such biases can influence budgetary allocations, tax execution or access to the state provision of services which contravenes notions of decency and equity in the context of public finance.

Other ethical issues are privacy and data protection. The public financial systems based on AI work with huge amounts of sensitive financial and personal data, making it more prone to abuse or other unlawful interventions. The need to have robust data governance mechanisms to ensure that the rights of citizens are upheld and that successful digital innovation takes place is a consistent feature throughout the literature.

There is also a warning not to over-automate the decisions made in public finance by the scholars. Overuse of AI can lead to poor transparency when algorithmic processes themselves are implicable or even inaccessible to stakeholders. According to Pulijala (2024), opaque AI systems may undermine accountability because they will no longer force human decision-makers to account but instead leave them to technical systems that can hardly be audited or criticized.

To deal with these fears, there are a number of governance-related solutions. Li (2025) suggests the creation of AI ethics councils and development of AI transparency laws as the means of offering institutional control and normative advice. Sigfrids et al. (2022) also support the idea of inclusive policy-making methods that leave the hierarchical forms of the governance and integrate different perspectives of the stakeholders. All these recommendations are combined to state that ethical AI governance must be participatory, transparent, and human-oriented in its institutional designs.

### **5.3 Digital Disparity and Social Equity Issues.**

In addition to technological and ethical issues, the digital divide is an acute issue that defines the outcomes of digital governance of digital reforms in the area of public finance. There are still digital divide between and within countries in ways that cause inequalities in access to digital infrastructure, skills, and financial information.

Amaglobeli (2023) shows that unrestricted access to digital infrastructure is a barrier to citizens and organizations enjoying the benefits of digital initiatives of using public finance. Under the conditions when the net connection is unreliable or unaffordable, digital platforms can cut a huge part of the population and disrupt the principles of inclusive governance. This kind of exclusion threatens to make digital public finance a technocratic change that favors the digitally connected stakeholders.

The literature also highlights the fact that the digital divide should be addressed through the coordinated actions on both the supply and demand sides. Amaglobeli (2023) emphasizes the role of infrastructure investment, especially in the broadband and electricity infrastructure, as well as the policies that will help to raise the affordability and digital literacy. Lack of these



supportive measures can lead to increased socio-economic inequalities as digital public finance reforms can complement the current conditions.

On the institutional level, institutional digital divides also influence capacity to the public sector. The technological preparedness of different government agencies may result in different levels of implementation and disjointed financial systems. Krynytsia (2024) adds that although the digital transformation may generate significant advantages, such as better resource management and greater transparency, it should be implemented with wide-ranging reform plans, legal modifications, and involving the government, the private sector, and civil society to achieve success.

#### **5.4 Integrated Governance Risks and Reform Implication.**

Combined, the issues that are outlined in the literature make it clear that digital public finance reforms come with complicated trade-offs between innovation, control, and equity. Regulatory gaps, ethical risks brought by AI, and cybersecurity threats intersect in a manner that contributes to the governance outcomes. These issues point to the notion that the agenda of digital public finance should not be followed as a technical modernization project, but as a multidimensional governance reform.

The empirical arguments lead to the belief that successful digital governance of the public finance state demands combined policies to ensure that technological innovation is put into line with institutional capabilities, ethical security, and social integration. Reforms that do not take these dimensions into account run the risk of generating shallow benefits of transparency and compromising trust and accountability in the long run. This is a critical evaluation that gives a fundamental basis in studying the implications of digital reforms in emerging economies of public finance.

### **6. Implications of Digital Public Finance for Emerging Economies**

The emerging economies take the center stage in modern discussions related to digital public finance and governance. These contexts are a mix of urgent imperatives of fiscal transparency and economy and structural constraints in the form of infrastructure, institutional capacity and socio-economic inequality. Digital public finance reforms are thus a game changer and a hard task in governance. This part provides a literature synthesis to explore the impact of digital public finance initiatives on governance outcomes in emerging economies and determine some of the strategic implications of reform.

#### **6.1 Digital Government as a Catalyst for Development**

Digital government programs are generally known to be the possible forces of inclusive growth in developing economies. In a systematic review of the research on digital transformation, Mulenga (2025) singles out e-government platforms, mobile money, and digital financial services as the key elements of modernization policies in the developing setting. The technologies allow the government to expand financial services, enhance the efficiency of administration, and access to the information with the government, thus facilitating the realization of more social-economic development goals. These findings are supported with empirical evidence. As Castro and Lopes (2021) show, e-government development positively and significantly influences the outcomes of sustainable development, especially in developing economies. In their analysis, they propose that digital public finance systems are associated with the provision of better fiscal management, as well as policy coherence and service delivery. Esposito et al. (2025) also highlight that digital technologies can redefine the economic



opportunity, the forms of governance and the social inclusion in the Global South. Regarding governance, digital public finance tools provide an opportunity to the emerging economies to find ways of going around structural constraints like administrative system fragmentation and lack of oversight ability. Digital platforms are able to standardize financial operations, lower the transaction cost and enhance traceability of government spending.

## 6.2 Structural Constraints and Institutional Readiness

Although digitizing the public finance can bring transformative potential, the structural and institutional restraints continue to trouble digital public finance reforms in the emerging economies. Mulenga (2025) identifies inadequate digital infrastructure, poor policy frameworks and a low level of digital literacy as some of the biggest barriers to effective implementation. The improper availability of electricity, a lack of broadband networks, and an aged information system destroy the financial viability of digital public finance systems in most settings.

Reform outcomes are also determined by institutional readiness. The reforms of public finance in the developing countries tend to be within intricate and multifaceted institutional settings. Knox and Sharipova (2023) describe the progress of reforms as being hybrid and layered, with new digital interventions being overlaid over the old financial management systems, but not on them. This stratification may cause coordination difficulties, lack of system coherence and weaken the governance benefits of digitalization.

The same is highlighted by Allen et al. (2020) who state that those reforms of public finance are restricted by the lack of administrative capacity and political instability. Such limitations may lead to an unequal uptake among government organizations, which undercut interoperability and benefits transparency. According to the literature, the issue of digital public finance reforms as such is to be sequenced and adjusted to the current institutional capacities.

## 6.3 Results of Digitalization and Fiscal Reform.

In emerging economies, digital reforms of the public finances are in close interaction with larger fiscal reform programs. It has been shown that strategic fiscal reforms such as digitalization of tax and modernization of revenue administration can considerably enhance the performance of the public sector. Wijayanti and Siswanto (2025) demonstrate that tax reforms that are backed by digital systems increase revenue generation and equity particularly in cases where reforms are adjusted according to institutional capacity and governance agenda.

Gnangnon (2022) also presents additional evidence that the successful fiscal reforms might help in the reduction of the public debt through the enhancement of the revenue mobilization and fiscal discipline. The digital tools facilitate the following results: they allow to predict revenue more efficiently, monitor compliance more efficiently, and minimize administrative waste. Nevertheless, such advantages depend on good institutional design and political dedication.

Those are persistent difficulties, like poor institutions, low enforcement capacity, and political opposition which can impede the effectiveness of reform (Knox and Sharipova, 2023; Allen et al., 2020). These results emphasize that the digital public finance reforms must be viewed as governance changes that occur over long periods of time, but not as efficiency-related measures in the short term.

## 6.4 Policy and Governance Strategic Implications.

The reviewed evidence implies that there are a number of strategic implications of digital public finance reforms in emerging economies. To begin with, there is still the requirement to



invest in the basic infrastructure to enable the successful digitalization. The digital finances are crucial to accessing and operating continuously and safely with the help of expanding the range of broadband connection and maintaining the reliability of electricity supply. Devoid of such investments, digital reforms will support the current regional and institutional inequalities.

Second, development of human capital is important. Mulenga (2025) stresses the significance of investing in the digital skills training of both the citizens and the public officials. Digital public finance systems engage not only technical skills but also managerial and analytical skills to integrate the information and apply digital skills in the decision-making process.

Third, there should be strong legal and regulatory frameworks in support of digital public finance governance. It is necessary to establish trust and compliance through the clear rules that regulate data protection, system interoperability and accountability mechanisms. Castro and Lopes (2021) also point out that the results of governance are the most optimal when digitalization is part of consistent policy structures and not a collection of fragmented initiatives.

Fourth, the emerging economies will have the benefit of promoting innovative digital ecosystems that foster cooperation among the government, the players in the private sector, and the civil society. According to Esposito et al. (2025), inclusive digital ecosystems have the potential to enhance the developmental impact of the digital public finance through promoting both innovation and local adjustment.

Lastly, there is the focus of the literature on the adaptive and context-specific reform strategies. Wijayanti and Siswanti (2025) and Allen et al. (2020) share the view that success in reform relies on effective leadership, institutional tenacity, and being able to adapt an implementation approach to the changing circumstances. Instead of imitating the digital public finance systems in developed economies, emerging economies need to adhere to digital public finance reforms to suit their institutional and socio-economic settings.

In general, digital public finance reforms can provide emerging economies with an effective instrument in enhancing transparency, efficiency, and fiscal governance. These reforms however work under very sophisticated institutional environments where there are infrastructural restraints, capacity limits and political impediments. It is constantly shown in the literature that digitalization is not sufficient to provide sustainable governance enhancement. Digital public finance should be part of reforms aligned with the development of human capital and foundation of more inclusive governance practices.

## 7. Discussion

This article attempted to discuss the role of digital public finance as a form of governance, especially in the context of how it applies to transparency and efficiency in new economies. The study will provide a step forward in the multi-paradigmatic conceptual, empirical, and policy-based literature by synthesizing it to reach a governance-based conceptualization of digital public finance that is not based on technological interpretations. Three main contributions are identified in the discussion namely to theory, to governance in the field of public finance, and policy and practice.

### 7.1 Theoretical Contributions: Refraining Digital Public Finance.

The initial contribution of the research is that it theorizes the concept of digital public finance. The literature has a tendency to see digitalization as an operational or technical change with a view toward system design, increased efficiency, or performance indicators. The article



makes a contribution to theory by the conceptualization of digital public finance as an institutional governing tool and in the context of the wider digital governance and institutional frameworks.

The study using a blend of the digital era governance theory, transparency, and accountability frameworks, and institutional theory illustrate that regulative, normative, and cognitive institutional conditions mediate the outcomes of digital public finances. Digital solutions (budgeting platforms, e-procurement systems, AI-based forecasting, etc.) do not exist in the ideal form; their impacts depend on the relationships between them and the current organizational structures, legal systems, and governance standards. This observation helps fill a lacuna in the literature, as the governance processes associated with the interconnection of digitalization and the result of public finance are not theorized.

In addition, the paper is relevant to the digital governance theory because it applies this concept to the realm of public finance. Though the research in digital governance has acquired the services delivery and citizen engagement, the issue of service public financial management has been relatively less conceptualized. The article frames the concept of public finance as one of the important arenas where digital governance principles are implemented and experimented, including the concepts of integration, transparency, and accountability.

### **7.2 Governance Contributions: Institutional Outcomes of Transparency and Efficiency.**

The second contribution is that it explains the role of digital public finance in influencing the results of governance, especially transparency and efficiency. The synthesis of the findings shows that digital public finance reforms are always linked with the better access to the financial information, the standardization of the reporting, and the greater number of control mechanisms. These benefits of transparency are not symbolic; they become institutionalized with the help of real-time access of data, automated surveillance, and open financial platforms.

Simultaneously, the results show that the efficiency gains, although significant, are conditional as opposed to automatic. Digitalization enhances efficiency through cutting down on administrative load, speeding up operations, and aiding predictive fiscal management. Nonetheless, these benefits are mediated by the organizational capacity, technological preparedness and the human capital. This puts into question the deterministic accounts that the digitalization is a sure remedy to inefficiency and reflects the significance of alignment of governance.

Notably, the discussion points out that transparency and efficacy cannot be regarded as the results that are independent of each other. Transparency in digital public finance tools will usually lead to greater efficiency in that information asymmetry and discretion is minimized. On the other hand, digital reforms that are motivated by efficiency and disregard transparency and accountability can affect the level of public trust and legitimacy of governance. This interdependence is also another important governance lesson that comes to mind as a result of the analysis.

### **Digital Public Finance in Emerging Economies: Conditional Transformation 7.3.**

The third input is about the implications of digital public finance peculiar to emerging economies. As the analysis shows, digital public finance has a substantial potential of enhancing fiscal governance in situations that can be described by a lack of institutional single-mindedness, inadequate oversight capabilities, and resource shortages. There is an opportunity to normalize the practices, increase the mobilization of revenues, and improve the control over expenditures



with the assistance of the digital means.

Nonetheless, it has also been pointed out in the discussion that digital transformations of public finances in new economies are necessarily conditional and path determined.

Rather, the study supports the necessity to have adaptive, context-sensitive reforms strategies that focus more on basic capacity-building and technological innovation.

#### **7.4 Digitalization Ethical and Institutional Boundaries.**

The debate also goes further to support the development of the ethical and institutional limits of digital public finance, especially concerning artificial intelligence. Although AI-based tools increase the accuracy of the forecasts and the risk of detection, they raise the governance issues of the algorithmic bias, privacy, and accountability. The results indicate that the AI governance value requires transparency in system-design, regulatory, and retention of humanity in decision-making.

The views play a role in the continuing discussions of the responsible digital governance by highlighting that the technological complexity should be accompanied with democratic principles and organizational responsibility. Public finance reforms based on digital technologies from the perspective of efficiency but without ethical considerations are likely to weaken the credibility of the system of public financial management.

### **8. Conclusion and Policy Recommendations**

The future of digital public finance in emerging economies is set to transformively grow, which is due to the rapid technological innovation, widening financial inclusion, and growing investments in digital infrastructure. This paper has discussed digital public finance as a governance mechanism to show that digitalization transforms the operations of the public financial management, not only in enhancing operational efficiency, but also in making transparency, accountability, and predictability in the system of managing the public finance institutions as an institution. Through the combination of theoretical framework, empirical evidence and policy-oriented insights, the study is able to develop a governance-based conceptualization of digital public finance, which is especially pertinent to new economies.

The results also suggest that the digital public financier reforms have already produced tangible gains. There is empirical evidence of massive growth in digital financial inclusion, a report by Harichandana (2025) indicated that half of all adults in low and middle-income economies have now become digital account holders and 42% are now using digital payments - up 20% since 2021. These changes are part of digital transformation trends reported by Mulenga (2025) who mentions e-government platforms, mobile money, and digital financial services as the prevalent and most frequently mentioned themes in digital governance studies. Collectively, these tendencies highlight the increasing relevance of digital public finance as the core element of the contemporary governance of the public sector.

Simultaneously, the analysis proves that digital reforms of public finances are not self-implementing. Enduring obstacles, such as the inadequate digital infrastructure, the low-level of digital literacy (which is estimated to be about 40 percent in most situations), and the growing cybersecurity threat, still restrict the results of reform. These problems put once again the main thesis of this paper, which states that digital public finance should be viewed as a longer-term



institutional change and not a technology intervention.

### 8.1 Policy Recommendations

In conclusion, based on the analysis, a number of policy recommendations can be provided to governments and other stakeholders who might use digital public finance as a governance mechanism in emerging economies.

1. The essentials of the digital infrastructure should be given priority. Effective digital public finance systems are based on reliable broadband connection, reliable electricity supply, and infrastructures that are secure. In the absence of such preconditions, digital reforms will only increase regional and institutional disparities but not lead to better governance outcomes.

2. Invest in digital capacities and institutional capacity. The digital public finance systems will need not only technical skills, but also management, analytical, and ethical skills. The governments must invest in the constant training of the officials as well as instilling digital literacy to the citizens so that there is meaningful engagement with the digital financial information.

3. Build legal and regulatory frameworks. Efficient and flexible rules of how data protection, system interoperability, algorithmic accountability and cybersecurity are placed are the key to the establishment of trust in digital public finance systems. The whole regulatory framework must keep up with the advancement in technology to prevent any gap in governing and legal ambiguity.

4. Embrace ethical and humanistic methods of governance. The more AI and improved analytics take their places in the day-to-day financial management of the people, the more important the mechanisms of ethical control become. The risks associated with bias, privacy and accountability can be reduced with the help of transparent system design, human-in-the-loop decision-making, and independent oversight bodies.

5. Seek dynamic and situational reform agendas. Emerging economies vary in terms of institutional capacity, political environment and socio-economic environment. Reforms in the digital public finance must be designed according to local circumstances, proceed in a realistic sequence and are combined with the agendas to broader public sector reforms as opposed to being implemented as single projects.

### 8.2 Future Research Suggestions.

Although this paper offers a detailed governance-oriented overview, a number of research opportunities exist in the future. Additional empirical research on the long-term governance performance of digital public finance-related reforms, especially within the context of low-capacity institutions, would enhance a better insight into the sustainability of reforms. Regional comparisons and institutional model comparisons would also help better understand the impact of contextual factors on digital public finance paths. Lastly, the study of ethical governance systems of AI in state finances is a pressing and under-researched field of study.

In conclusion, digital public finance is an influential tool in improving transparency, efficiency, and accountability within the emerging economies. However, transformative potential can be achieved only when digitalization is integrated into the established frameworks of governance, which are oriented to the importance of institutional capacity, ethical principles, and inclusive development. This article can make a contribution to the scholarly discussion and provide practical information to policymakers struggling with the specifics of the digitalization



of the public sector because it presents the digitalization of public finance as a transformation of governance and not technological salvation.

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