

Economic Impact of Judicial Digitalisation in Ghana: Institutional Alignment and Economic Governance

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Abstract

Judicial digitalisation has become a central component of contemporary governance reform. Although existing scholarship highlights the administrative and procedural benefits of electronic courts, limited attention has been given to how institutional conditions shape the economic returns of such reforms in lower-middle-income contexts. This study examines how judicial digitalisation in Ghana influences administrative efficiency and transaction costs and how institutional alignment mediates these effects. A qualitative multiple-case study design was employed using document analysis, semi-structured interviews, and focus group discussions with judicial administrators, legal practitioners, business representatives, and court users. Findings indicate that electronic filing systems, digital scheduling, and virtual hearings reduce clerical workload, improve procedural predictability, and lower selected travel and opportunity costs. However, these gains are uneven and depend on infrastructural adequacy, regulatory coherence, execution capacity, cybersecurity safeguards, and digital literacy. Comparative insights from Rwanda and South Africa further show that sustained economic returns from digital justice reforms require coordinated governance and long-term institutional commitment. The study refines institutional implementation and transaction-cost perspectives by demonstrating that digitalisation does not automatically generate economic benefits; rather, institutional alignment determines whether potential efficiency gains are realised and sustained. These findings contribute to digital governance scholarship and inform policy debates on sustainable judicial reform in developing economies.

Keywords: judicial digitalisation; institutional alignment; transaction costs; digital governance; Ghana; access to justice

Introduction

Digital transformation has become a defining feature of public-sector reform globally. Governments increasingly deploy digital technologies to modernise administrative processes, enhance transparency, and improve service delivery efficiency. Within this broader transformation, judicial digitalisation occupies a uniquely consequential role because courts function as foundational institutions in economic governance. They enforce contracts, resolve disputes, protect property rights, and uphold regulatory compliance. Where judicial systems are inefficient or unpredictable, they increase transaction costs, discourage formal economic participation, and undermine institutional trust.

Judicial digitalisation refers to the integration of digital technologies into court administration and adjudication processes. These reforms typically include electronic filing (e-filing) systems, digital case management platforms, automated scheduling tools, virtual hearings, and digitised archival records. Proponents argue that such systems streamline workflow, reduce reliance on paper-based documentation, and shorten adjudication timelines. Empirical studies from high-income jurisdictions demonstrate that information technology adoption in courts is associated with reduced case backlogs and improved administrative throughput (Ahmed et al., 2021; Mathis & Mussard, 2025). These improvements are often framed as generating economic benefits by lowering enforcement costs and enhancing legal predictability. However, technological adoption does not automatically translate into systemic economic gains. Institutional implementation theory emphasises that reform outcomes depend on alignment between policy design, execution capacity, and organisational context (Agblevor et al., 2023). In lower-middle-income environments, digital reforms unfold within institutional settings characterised by infrastructural deficits, fiscal constraints, regulatory fragmentation, and

uneven digital literacy. These structural conditions shape whether potential efficiency gains are realised, sustained, or unevenly distributed.

Ghana presents a compelling context for examining these dynamics. Over the past decade, Ghana has pursued an active digital governance agenda, including initiatives aimed at digitising court processes and improving case management efficiency (Adu, 2016; Dzisah, 2022). Electronic filing systems have been introduced in selected courts, and the digitisation of judicial records has expanded incrementally. These reforms aim to eliminate administrative bottlenecks, increase procedural transparency, and enhance access to justice. Yet Ghana's digital justice transformation occurs amid fiscal pressures and infrastructural challenges. Parliamentary budget reports reveal competing development priorities affecting sustained ICT investment within the judiciary (Ministry of Finance, 2021; Parliament of Ghana, 2023). Cybersecurity capacity remains a documented concern within Ghana's broader digital ecosystem (Apau & Koranteng, 2020). Broadband penetration remains uneven across urban and rural regions. These conditions raise important questions regarding the depth and sustainability of economic returns from judicial digitalisation. Existing scholarship provides limited guidance on how institutional alignment shapes economic outcomes in such contexts. While research documents administrative efficiency gains in technologically advanced jurisdictions, fewer studies examine how infrastructural adequacy, regulatory coherence, and execution capacity mediate economic returns in developing economies. Ghana's ongoing judicial digitalisation, therefore, provides an opportunity to analyse institutional mediation explicitly.

This study asks: *How does judicial digitalisation in Ghana influence administrative efficiency and transaction costs, and how are these economic effects mediated by institutional alignment?*

By foregrounding stakeholder experiences across judicial administrators, legal practitioners, business representatives, and court users, the study moves beyond adoption metrics to examine how reforms operate in practice. Rather than treating digitalisation as inherently efficiency-enhancing, it investigates how institutional conditions filter technological potential into realised economic outcomes. The analysis integrates transaction-cost economics with institutional implementation theory. Transaction-cost theory conceptualises courts as institutions that reduce uncertainty and enforcement costs in economic exchange. Judicial inefficiency increases coordination costs and delays dispute resolution. Digital technologies may reduce procedural friction and lower selected transaction costs. However, institutional implementation theory suggests that reforms produce outcomes only when aligned with execution capacity and regulatory coherence. The economic impact of judicial digitalisation is therefore hypothesised to be institutionally mediated rather than technologically determined.

This study makes three contributions. First, it refines digital governance scholarship by demonstrating that economic returns from judicial digitalisation depend on institutional alignment rather than technological adoption alone. Second, it extends institutional implementation theory by identifying infrastructural adequacy, regulatory coherence, execution capacity, cybersecurity safeguards, and digital literacy as mediating variables linking reform design to economic outcome. Third, it provides empirically grounded evidence from a lower-middle-income African context, enriching comparative understanding of digital justice reforms beyond high-income jurisdictions.

Literature Review

Judicial Digitalisation and Economic Governance

Judicial systems play a foundational role in economic governance by enforcing contracts, resolving disputes, and safeguarding property rights. From a transaction-cost perspective,

courts reduce uncertainty and coordination costs in economic exchange. Where adjudication is slow, unpredictable, or opaque, transaction costs increase and economic actors face heightened risk exposure. Judicial inefficiency has been linked to reduced investment confidence and constrained economic activity (Prescott, 2017; Yavuz et al., 2022). Digital technologies are increasingly positioned as tools to mitigate procedural inefficiencies in court administration. Electronic filing systems reduce reliance on manual documentation, automated scheduling tools minimise diary conflicts, and digital case management platforms enable real-time tracking of procedural stages. Empirical analyses of e-court implementation demonstrate measurable improvements in workflow efficiency and case processing speed (Ahmed et al., 2021). Mathis and Mussard (2025) further show that information technology adoption in European courts correlates with reduced procedural delays, suggesting that digital infrastructure can enhance institutional productivity when effectively implemented. However, digitalisation does not merely represent administrative automation; it constitutes an institutional intervention within governance structures. As Akpuokwe et al. (2024) argue, judicial reforms across African contexts are shaped not only by technological capacity but also by political commitment, regulatory design, and institutional accountability. Digital reforms therefore operate within existing governance architectures that condition their effectiveness.

In developing contexts, the economic implications of judicial digitalisation are particularly significant. Efficient courts reduce litigation-related opportunity costs, shorten enforcement timelines, and improve regulatory predictability. Yavuz et al. (2022) emphasise that digital governance reforms enhance transparency and procedural accountability, potentially strengthening institutional trust and economic participation. Prescott (2017) similarly demonstrates that platform technologies can improve access to justice while reducing administrative bottlenecks in state courts. Nevertheless, the literature increasingly recognises

that digital reforms do not inherently guarantee performance improvement. Edwards et al. (2024), in their systematic review of World Bank policy influence in education reform, caution that implementation gaps frequently undermine intended outcomes. Although their focus is education policy, the institutional insight applies more broadly: policy design alone does not ensure effective execution. Agblevor et al. (2023) similarly demonstrate how implementation gaps can dilute policy effectiveness in Ghana's public-sector reforms. These findings suggest that judicial digitalisation must be analysed through an institutional implementation lens rather than a purely technological one.

Digital Justice Reform in African Contexts

African experiences with judicial digitalisation demonstrate substantial variation in economic and administrative outcomes. Kenya's judiciary adopted digital court processes rapidly during the COVID-19 pandemic to ensure continuity of criminal justice administration (Mundia, 2022). Virtual hearings reduced physical court congestion and maintained procedural flow. However, infrastructural limitations and digital literacy disparities constrained uniform implementation across jurisdictions. Rwanda offers a contrasting case of centrally coordinated digital justice reform. The country's e-Judiciary system has been credited with substantial reductions in case resolution times, with reported efficiency improvements of approximately 40 percent in specific procedural contexts (Viebach, 2023; Philomène, 2024). Rwanda's approach emphasised regulatory coherence, institutional coordination, and sustained investment, illustrating how governance alignment can amplify digital reform benefits. South Africa's hybrid digital litigation model presents a more complex picture. While digital systems have improved document management and communication efficiency, infrastructural disparities and uneven regulatory integration have limited uniform economic returns (Holness, 2024). The South African experience demonstrates that partial digitalisation may generate

uneven benefits where institutional coordination remains fragmented. Continental assessments reinforce this pattern. Reviews of digital judicial reforms across Africa highlight administrative efficiency gains but caution that infrastructural inequality, fiscal constraints, and regulatory misalignment frequently limit scalability (Akpuokwe et al., 2024). These findings indicate that digital reform outcomes depend heavily on institutional coherence and financing stability.

Structural Constraints in Lower-Middle-Income Economies

Lower-middle-income contexts face structural barriers that complicate digital transformation initiatives. Infrastructure deficits, particularly limited broadband penetration and unreliable power supply, constrain digital platform reliability. Apau and Koranteng (2020) document challenges within Ghana's digital forensic and cybersecurity infrastructure, underscoring vulnerabilities that may undermine confidence in digital systems. Fiscal pressures further complicate reform sustainability. Parliamentary budget reports in Ghana reveal competing sectoral priorities that affect sustained investment in ICT infrastructure within the judiciary (Ministry of Finance, 2021; Parliament of Ghana, 2023). Without continuous funding for system maintenance, software updates, and cybersecurity upgrades, digital platforms risk deterioration over time. Global analyses echo these concerns. The World Bank (2022) notes that digital governance reforms in lower-middle-income countries often encounter scalability challenges due to gaps in institutional capacity. Edwards et al. (2024) similarly argue that policy diffusion does not automatically produce institutional transformation, particularly where implementation capacity remains limited. Socio-economic inequality compounds these structural constraints. Digital literacy disparities and uneven access to devices may restrict effective utilisation of digital justice platforms. Isaac and Godwill (2025), although focusing on rural America, demonstrate that digital legal empowerment initiatives require targeted support to overcome access barriers. The broader implication is that digital reforms risk

reproducing existing inequalities unless inclusive infrastructure and training accompany technological deployment.

Ghana's Digital Governance Context

Ghana has pursued digital governance reforms across multiple sectors, including land management, public administration, and financial services. Ameyaw and de Vries (2021) examine prospects for blockchain-based digital land registries in Ghana, highlighting both innovation potential and implementation challenges. These broader digital initiatives provide contextual grounding for judicial digitalisation efforts. Within the judicial sector, early efforts to preserve electronic government records underscore recognition of digital preservation needs (Adu, 2016). Kpessa-White (2022) documents policy efforts aimed at digitising public services, while highlighting implementation gaps that slow reform progress. These analyses suggest that Ghana's digital justice reforms must be evaluated within a broader institutional reform trajectory. Ashong Elliot et al. (2024) further emphasise that regulative and normative institutional pressures influence digital justice adoption outcomes. Their findings highlight how institutional culture and professional norms shape system utilisation, reinforcing the importance of alignment beyond technological provision. Moreover, gender and economic empowerment studies underscore the broader governance implications of legal accessibility (Puh et al., 2024). Efficient judicial systems contribute to equitable economic participation, particularly for vulnerable groups. Digital justice reforms, therefore, carry both economic and socio-institutional implications.

Research Gap

Despite growing attention to digital justice reform in Africa, three gaps remain evident. First, much of the literature focuses on adoption and procedural efficiency rather than economic

mediation. Studies document reduced case backlogs or improved administrative throughput but seldom examine how institutional conditions filter these improvements into sustained economic returns. Second, Ghana-specific analyses largely emphasise policy frameworks and administrative reforms without systematically examining transaction-cost implications (Adu, 2016; Dzisah, 2022). While institutional pressures influencing adoption have been explored (Ashong Elliot et al., 2024), economic outcomes remain under-theorised. Third, comparative scholarship frequently treats digitalisation as inherently efficiency-enhancing without interrogating the alignment mechanisms that determine success across contexts. This study addresses these gaps by analysing judicial digitalisation in Ghana through an institutional mediation framework. Rather than assuming direct economic benefits, it investigates how infrastructural adequacy, regulatory coherence, execution capacity, cybersecurity safeguards, and digital literacy shape observed efficiency gains and transaction-cost reductions.

Methods

This study adopts a qualitative multiple-case study design to examine how judicial digitalisation in Ghana influences administrative efficiency and transaction costs, and how institutional alignment mediates these effects. A qualitative case study approach is appropriate where the objective is to analyse complex institutional processes embedded within specific contextual environments (Yin, 2018). Judicial digitalisation constitutes a multi-layered reform shaped by technological infrastructure, organisational practices, regulatory frameworks, and stakeholder behaviour. Quantitative indicators alone are insufficient to capture how these interacting dimensions shape economic outcomes. The study is informed by an interpretive-institutional epistemology. While grounded theoretically in transaction-cost economics and institutional implementation theory, the analysis does not assume that technological adoption directly produces efficiency gains. Instead, it investigates how actors experience and interpret

digital reform within institutional constraints. An abductive analytic orientation was employed, allowing iterative movement between empirical evidence and sensitising theoretical concepts (Timmermans & Tavory, 2012). This approach supports theoretical refinement while maintaining empirical grounding. The multiple-case logic operates at the stakeholder level. Ghana serves as the broader institutional case, within which four embedded sub-cases are examined: judicial administrators, legal practitioners, business representatives, and court users. Embedded case designs enhance analytic depth by permitting comparison across institutional positions (Yin, 2018). This design strengthens theoretical generalisation by identifying mechanisms that operate across stakeholder categories rather than isolating a single actor perspective.

Ghana was selected as a critical case for examining institutional mediation in digital justice reform. Critical case selection allows analytical insight into broader theoretical propositions when the case presents features that make institutional dynamics particularly visible (Flyvbjerg, 2006). Ghana qualifies as a lower-middle-income country pursuing active digital governance reform amid infrastructural and fiscal constraints. The judiciary represents a strategically significant institution because of its central role in economic governance, contract enforcement and regulatory compliance. The Ghanaian context, therefore, provides theoretical leverage for understanding how institutional alignment shapes digital reform outcomes under resource-constrained conditions. Insights derived from this case may inform analysis in comparable lower-middle-income environments.

A purposive sampling strategy was employed to select participants with direct experience using digital court systems. The objective was information richness rather than statistical

representativeness, consistent with qualitative case study methodology (Patton, 2015).

Participants were drawn from four categories:

- Legal practitioners (public and private sectors)
- Business representatives (corporate and SMEs)
- Judicial administrators (oversight and implementation roles)
- Court users (general public and legal aid clients)

This stakeholder diversity enabled triangulation of perspectives on administrative efficiency, litigation-related costs, access barriers, and institutional trust. Thirteen participants were interviewed in total. Although modest in size, qualitative research emphasises depth over breadth. Guest, Bunce, and Johnson (2006) demonstrate that thematic saturation often occurs within relatively small samples when research questions are focused. Data collection proceeded until no substantively new themes emerged across stakeholder categories.

Data were collected using three complementary methods to enhance triangulation and credibility (Denzin, 1978). Documentary evidence included judicial service reports, parliamentary budget statements, select committee reports, and policy and reform documentation. These documents provided contextual information on funding allocations, implementation timelines, and reform priorities (Ministry of Finance, Republic of Ghana, 2021; Parliament of Ghana, 2023). Document analysis served two purposes: contextual grounding and cross-validation of stakeholder accounts. It also enabled assessment of alignment between reform design and fiscal commitment. Semi-structured interviews were conducted to explore participant experiences of digital court processes. Interview guides were structured around four thematic areas:

1. Administrative workflow changes
2. Litigation-related costs

3. Access and inclusion
4. Institutional challenges and system reliability

Open-ended questioning enabled participants to elaborate on both positive and negative experiences. Interviews were conducted in person or via secure digital platforms, recorded with consent, transcribed verbatim, and anonymised. Semi-structured interviews are particularly suitable for exploring institutional reform because they allow flexibility while maintaining thematic focus (Kvale & Brinkmann, 2009). Focus group discussions were conducted primarily with court users to facilitate collective reflection on digital literacy, access barriers, and user adaptation. Group interaction encourages participants to build on one another's experiences and surface shared institutional perceptions (Krueger & Casey, 2015). Focus groups complemented individual interviews by revealing patterns of digital exclusion and shared infrastructural constraints.

Data Analysis

Data were analysed using abductive thematic analysis, which allowed iterative movement between empirical observations and theoretical interpretation, following established thematic coding procedures (Braun & Clarke, 2006; Timmermans & Tavory, 2012). In the first stage, open coding was undertaken through repeated reading of the transcripts to identify recurring patterns relating to administrative efficiency, transaction-cost reduction, access inequality, cybersecurity concerns, and institutional trust. At this stage, initial codes were closely grounded in participants' own language in order to preserve analytic fidelity. In the second stage, axial coding was used to cluster these initial codes into broader thematic categories that captured key dimensions of institutional mediation, namely infrastructure adequacy, regulatory coherence, execution capacity, cybersecurity safeguards, and digital literacy. In the third stage, these themes were theoretically integrated and interpreted through the lenses of transaction-

cost theory and institutional implementation perspectives. This stage enabled the identification of alignment variables mediating the relationship between digital reform and economic outcomes. Throughout the analytic process, analytic memos were maintained to document coding decisions, emerging interpretations, and theoretical reflections, thereby enhancing transparency, consistency, and dependability in the analysis.

Trustworthiness was strengthened through triangulation across interviews, focus groups, and documentary evidence (Denzin, 1978). Credibility was enhanced by comparing perspectives across stakeholder categories. Divergent accounts were examined rather than excluded. Dependability was supported through systematic documentation of analytic decisions and maintenance of coding records. Transferability was addressed by providing a detailed contextual description of Ghana's institutional environment, enabling readers to assess applicability to comparable contexts (Lincoln & Guba, 1985). Reflexivity was maintained throughout the research process. The researchers acknowledged familiarity with Ghana's governance environment while consciously bracketing normative assumptions regarding digital reform outcomes.

Participation was voluntary, informed consent was secured, and all identifying information was removed from transcripts. Sensitive institutional details were handled confidentially.

Findings

The findings indicate that judicial digitalisation in Ghana has generated observable administrative efficiencies and reduced selected litigation-related transaction costs. However, these economic effects are uneven across institutional contexts and stakeholder groups. Four principal themes emerged from the analysis: (1) administrative workflow efficiency, (2)

transaction-cost implications for economic actors, (3) infrastructural disparities and digital exclusion, and (4) cybersecurity concerns and institutional trust.

Administrative Workflow Efficiency

Across stakeholder categories, participants reported that the introduction of electronic filing and digital case management systems reduced clerical workload and improved document handling. Judicial administrators explained that digitisation lessened dependence on physical file storage and manual retrieval, with one noting that, "Before digitisation, locating a file could involve searching through multiple registries," whereas documents could now be retrieved electronically, thereby reducing delays in case progression. Participants also described digital case tracking as improving procedural transparency, as system-generated updates reduced uncertainty around filing confirmation and scheduling. As one administrator explained: "We no longer depend entirely on the physical movement of files between departments. The system provides status updates, which improve coordination. Legal practitioners echoed these views, observing that electronic filing reduced the need to send clerks physically to court registries, with one stating that, "Previously, we had to send clerks to check whether documents had been entered into the system," but that confirmation was now quicker through e-filing. Participants further reported that digital scheduling tools reduced diary conflicts and improved hearing predictability, although these gains were uneven across courts. In settings with unstable connectivity, administrators noted that "the system works well when connectivity is stable", but regional access could still be slowed by network disruptions. Overall, administrative workflow improvements were most evident in courts with stable ICT infrastructure.

Transaction-Cost Implications for Economic Actors

Business representatives consistently highlighted reductions in indirect litigation costs arising from lower travel and time expenditure, particularly in matters requiring participation outside major urban centres. One participant explained that, for hearings held outside Accra, organisations had previously incurred travel and accommodation expenses, whereas virtual hearings now reduced those costs considerably. Participants also emphasised opportunity-cost savings, noting that senior staff could attend short procedural hearings remotely rather than lose an entire working day to physical court attendance. As one respondent put it, "Instead of losing a full working day for a brief hearing, we join remotely and return to other tasks." Legal practitioners similarly observed that digital filing improved predictability in procedural timelines, with one explaining that "when documents are filed electronically, there is greater clarity on processing stages", which in turn helps clients plan more effectively. At the same time, participants were careful not to overstate these efficiencies. They noted that "digitalisation did not materially reduce substantive legal fees, as the overall cost of litigation depends on the complexity of the case", even if administrative burdens were somewhat reduced. Thus, transaction-cost reductions were primarily associated with procedural and logistical components rather than core litigation strategy or professional fees.

Infrastructural Disparities and Digital Exclusion

Despite the efficiencies associated with digital justice platforms, participants described access as uneven across user groups and locations. Court users in peri-urban and rural areas reported that unreliable internet connectivity limited their ability to use online systems consistently. As one participant explained, "Internet access in my area is unreliable. Even if you want to use the online system, connectivity may fail." Focus group discussions also revealed differences in

digital literacy, with younger litigants generally adapting more easily to electronic filing processes, while older users were more likely to report difficulty navigating digital interfaces. This uneven familiarity with technology contributed to continued reliance on physical filing in some instances. As one participant observed, "Some people still prefer physical filing because they are not comfortable with computers." Several participants further noted that unfamiliarity with digital systems created dependence on intermediaries, including lawyers and registry staff, to complete or guide platform use. One respondent captured this dependency directly: "If you are not familiar with the system, you depend on someone else to assist." Taken together, these accounts suggest that digital access is shaped not only by infrastructure but also by user capability and support availability. These observations indicate that digital efficiency gains are concentrated among users with stable connectivity and digital competence. Urban-based courts and firms reported more consistent benefits than stakeholders operating in infrastructure-constrained environments.

Cybersecurity Concerns and Institutional Trust

Cybersecurity emerged as a recurrent concern across stakeholder groups, particularly in relation to data protection, system reliability, and user confidence in digital justice platforms. Participants reported that concerns about the security of electronically filed documents shaped perceptions of trustworthiness and system legitimacy. As one respondent explained, "Clients ask whether their documents are secure online. Confidence depends on how secure the system is." Judicial administrators similarly recognised that the benefits of digital systems must be balanced against the vulnerabilities they introduce, with one noting that 'digital systems improve access, but they also introduce vulnerability, making continuous monitoring and system upgrades necessary. Although participants did not report any confirmed cybersecurity breaches, they described system downtime and technical glitches as practical threats to

confidence in digital processes. One participant observed that "sometimes hearings are delayed due to technical issues", which in turn affects trust in the system's dependability. Taken together, these accounts suggest that cybersecurity concerns are not limited to the possibility of external attack but also include the broader institutional capacity to ensure system stability, protect sensitive legal documents, and maintain procedural confidence in digitally mediated court operations. These concerns influenced stakeholder trust in digital platforms. While participants generally supported digital reform, institutional confidence appeared contingent on system reliability and data security assurances.

Variation Across Courts

Variation across courts was a consistent theme. Participants associated with courts in major metropolitan areas described smoother digital integration. Those connected to regional courts reported more frequent connectivity interruptions and slower adaptation. The system functions better in Accra than in some regional jurisdictions. Administrative efficiency improvements were therefore unevenly distributed geographically. Courts with stronger infrastructure demonstrated more consistent performance gains.

Summary of Observed Economic Effects

The findings indicate that judicial digitalisation in Ghana has:

- Reduced clerical workload and manual file handling
- Improved procedural predictability
- Lowered selected travel and opportunity costs for businesses
- Concentrated benefits among digitally connected users
- Raised cybersecurity concerns influencing institutional trust
- Produced uneven gains across courts

Economic effects are specific rather than transformative. Gains are observable but vary according to infrastructural conditions and user capacity, as presented in Table 1.

Table 1: *Institutional Mediation of Economic Effects of Judicial Digitalisation in Ghana*

Dimension of Digital Reform	Reported Economic Effect	Institutional Enabler	Institutional Constraint	Net Observed Outcome
Electronic Filing	Reduced clerical workload; lower paper costs	Basic ICT infrastructure in urban courts	Uneven broadband access	Efficiency gains concentrated in urban courts
Digital Scheduling	Fewer adjournments; improved time management	Administrative adoption by court staff	System downtime and connectivity gaps	Moderate procedural acceleration
Virtual Hearings	Reduced travel and opportunity costs	Judicial approval of remote proceedings	Limited digital literacy among users	Selective cost savings for firms
Digital Record-Keeping	Faster document retrieval; improved transparency	Centralised database management	Cybersecurity vulnerabilities	Improved access with trust concerns
Online Case Tracking	Greater predictability for litigants	Platform availability	Access barriers in rural areas	Uneven distribution of benefits

Source: Field Data (2025)

Discussion

This study examined how judicial digitalisation in Ghana influences administrative efficiency and transaction costs, and how institutional alignment mediates these effects. The findings demonstrate that digital court reforms generate identifiable administrative efficiencies and selected transaction-cost reductions. However, these economic gains are neither automatic nor uniformly distributed. Instead, institutional conditions shape whether digital reform translates into sustained economic benefit.

Digital Reform as a Conditional Efficiency Mechanism

The findings confirm that electronic filing systems and digital case management platforms reduce routine clerical burdens and improve procedural predictability. These improvements align with prior empirical evidence demonstrating that digital infrastructure enhances court workflow efficiency (Ahmed et al., 2021; Mathis & Mussard, 2025). Virtual hearings reduce travel-related costs and opportunity costs for economic actors, supporting arguments that digital governance tools can lower selected transaction costs (Prescott, 2017; Yavuz et al., 2022). However, the Ghanaian case illustrates that these efficiency gains remain bounded. Digitalisation reduces procedural friction but does not fundamentally restructure the overall cost architecture of litigation. Substantive legal fees and structural case complexities remain unaffected by technological adoption. This finding refines transaction-cost theory by distinguishing between administrative transaction costs and substantive legal costs. Digital tools reduce coordination and processing costs but do not eliminate structural legal expenses. More importantly, the findings indicate that technological provision alone does not ensure economic transformation. Digital platforms operate as potential efficiency mechanisms whose effects depend on institutional alignment. Where infrastructural adequacy and organisational

capacity are present, efficiency gains are more visible. Where these conditions are weak, benefits are partial or interrupted.

Institutional Alignment as Mediating Mechanism

The central theoretical contribution of this study lies in identifying institutional alignment as the mediating mechanism linking digital reform to economic outcome. Four alignment dimensions were particularly salient: *infrastructural adequacy*, *regulatory coherence*, *execution capacity*, and *cybersecurity safeguards*. First, infrastructural adequacy shapes system reliability. Courts with stable broadband connectivity experienced smoother workflow integration and more consistent efficiency gains. In contrast, courts facing connectivity disruptions experienced interruptions that undermined procedural predictability. These findings echo broader public-sector digitalisation literature emphasising infrastructure as a precondition for effective reform (World Bank, 2023). Second, regulatory coherence influences uniformity of implementation. Fragmented procedural rules or uneven system deployment reduce interoperability and predictability. Comparative evidence from South Africa demonstrates that partial digitalisation can yield uneven outcomes when regulatory alignment is incomplete (Holness, 2024; Bhamjee et al., 2023). Ghana's experience reflects similar dynamics, where implementation varies across jurisdictions. Third, execution capacity, particularly staff training and technical support, affects effective system utilisation. Institutional reforms require organisational adaptation. Agblevor et al. (2023) demonstrate that implementation gaps frequently dilute policy outcomes in Ghana's public sector. The present findings reinforce this insight within the judicial context. Fourth, cybersecurity safeguards shape institutional trust. Even in the absence of documented breaches, perceived vulnerability influences stakeholder confidence. Apau and Koranteng (2020) highlight weaknesses in Ghana's digital forensic infrastructure, underscoring the need for strengthened cybersecurity

frameworks. Trust, therefore, becomes an economic variable, affecting willingness to rely on digital platforms. Together, these mediating factors illustrate that digital justice reforms generate economic returns only when embedded within coherent institutional ecosystems.

Comparative Institutional Perspective

Comparative evidence from Rwanda and South Africa reinforces the mediation thesis. Rwanda's centrally coordinated e-Judiciary reforms achieved substantial reductions in case resolution times through sustained investment and regulatory coherence (Viebach, 2023; Philomène, 2024). Digital reform was embedded within a broader governance strategy, enabling institutional alignment. South Africa's hybrid model, by contrast, illustrates how infrastructural disparities and regulatory fragmentation limit uniform economic returns (Holness, 2024). While digital systems improved certain administrative functions, uneven implementation constrained system-wide gains. Ghana's experience occupies an intermediate position. Digital reforms have reduced administrative burdens and selected transaction costs, yet infrastructural and capacity constraints moderate the impact. These cross-national comparisons support the conclusion that technological sophistication alone does not determine reform success; institutional alignment does.

Distributional Implications and Digital Inequality

The findings also reveal distributional consequences. Efficiency gains were concentrated among stakeholders with reliable connectivity and digital competence. Urban-based businesses and practitioners experienced clearer benefits than rural court users facing infrastructural barriers. This uneven distribution mirrors broader patterns of digital inequality observed in developing contexts (Isaac & Godwill, 2025). Digital justice reforms, therefore, risk reproducing spatial and socio-economic disparities if infrastructure expansion does not

accompany technological deployment. Institutional alignment must extend beyond internal court systems to encompass broader digital inclusion policies.

Theoretical Refinement

This study refines institutional implementation theory by demonstrating that digital reforms operate through mediated pathways. Alignment conditions determine whether technological potential becomes a realised economic benefit. Transaction-cost reductions occur not directly through adoption but through effective utilisation supported by institutional coherence. Instead of assessing digital justice reforms only through adoption metrics or case backlog statistics, scholars should investigate alignment factors that influence sustainability and equitable distribution. This change shifts digital governance scholarship from technological determinism towards institutional conditionality. The conceptual framework presented earlier synthesises this insight: judicial digitalisation introduces potential efficiency gains, but institutional alignment filters those gains into realised economic outcomes. Misalignment produces uneven or diminishing returns. To synthesise these findings, Figure 1 presents a conceptual framework illustrating the institutional mediation of economic effects arising from judicial digitalisation. The framework proposes that digital reform initiatives do not directly generate economic outcomes. Instead, their impact is filtered through institutional alignment factors, including execution capacity, regulatory coherence, infrastructural adequacy, cybersecurity safeguards, and digital literacy. Where these mediating factors are aligned, efficiency gains and transaction-cost reductions are realised. Where misalignment persists, economic benefits become uneven, partial, or unsustainable. This framework refines existing digital governance theory by identifying institutional alignment as the mechanism linking technological reform to economic impact.

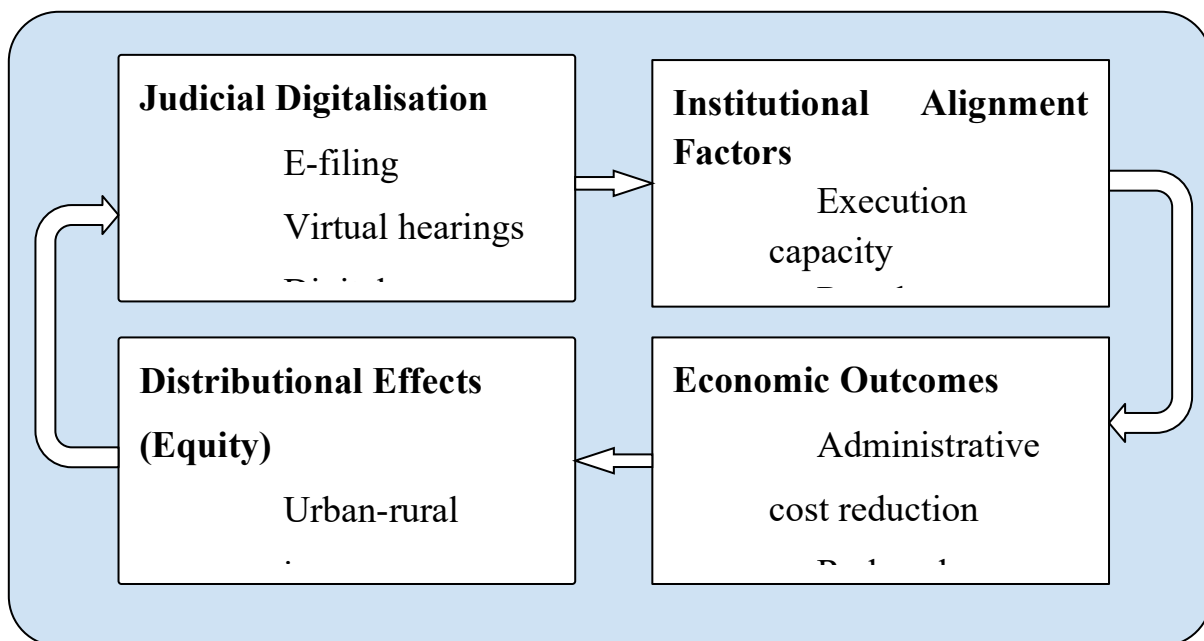


Figure 1: *Conceptual framework linking Judicial digitalisation, Institutional alignment factors, Economic outcomes, and Distributional effects*

Implications

The findings of this study carry important theoretical and policy implications for digital governance scholarship and judicial reform practice in lower-middle-income contexts. By demonstrating that economic returns from judicial digitalisation are mediated by institutional alignment rather than technological adoption alone, the study reframes both analytical and practical approaches to digital justice reform.

Theoretical Implications

This study advances digital governance theory by shifting attention from adoption metrics to alignment mechanisms. Much of the existing literature evaluates digital reform through indicators such as system deployment, case backlog reduction, or usage rates (Ahmed et al., 2021; Yavuz et al., 2022). While these measures capture operational change, they do not fully explain variation in economic outcomes across institutional contexts. The present findings

demonstrate that technological infrastructure alone does not guarantee sustained efficiency gains. Instead, economic returns are contingent upon institutional alignment variables, specifically infrastructural adequacy, regulatory coherence, execution capacity, cybersecurity safeguards, and digital literacy. This insight refines institutional implementation theory by identifying alignment as the mechanism linking reform design to economic outcome (Agblevor et al., 2023). Moreover, the study extends transaction-cost economics into the domain of judicial digitalisation. Traditional transaction-cost perspectives assume that improved institutional efficiency reduces coordination and enforcement costs. However, the findings show that digital tools reduce selected procedural transaction costs only when institutional conditions enable effective utilisation. Transaction-cost reduction is therefore institutionally conditional rather than technologically automatic. Theoretically, this shift moves digital governance scholarship beyond technological determinism toward institutional mediation. Rather than assuming that digital reforms inherently produce systemic improvement, scholars must examine how governance structures filter technological potential into realised outcomes. This refinement contributes to more nuanced comparative analysis of digital justice reform across diverse contexts. Finally, by providing empirically grounded evidence from Ghana, the study enriches the predominantly high-income bias within digital justice scholarship. Comparative evidence from Rwanda and South Africa reinforces that institutional coherence determines reform sustainability, suggesting that alignment dynamics merit greater attention in cross-national digital governance research.

Policy and Managerial Implications

From a policy perspective, the findings indicate that digital justice reform must be approached as a long-term institutional transformation rather than a discrete technological intervention. Sustainable economic returns require coordinated attention to multiple alignment dimensions.

First, *infrastructural investment* is essential. Stable broadband connectivity, reliable power supply, and functional ICT hardware constitute prerequisites for effective system utilisation. Without infrastructural adequacy, digital platforms risk intermittent performance that undermines procedural predictability and stakeholder confidence. Second, *regulatory harmonisation* across court levels and jurisdictions is critical. Fragmented digital procedures reduce interoperability and weaken consistency in case management. Policymakers should prioritise standardised digital court regulations to ensure coherent implementation across the judiciary (Kyei-Mensah-Bonsu, 2023). Third, *capacity-building initiatives* must accompany technological deployment. Judicial officers, administrative staff, and legal practitioners require ongoing training to maximise effective utilisation of digital systems. Organisational adaptation is as important as technological provision. Implementation gaps documented in other Ghanaian policy contexts demonstrate that reform success depends heavily on execution capacity (Agblevor et al., 2023). Fourth, *cybersecurity frameworks* require strengthening. Participant concerns regarding data protection and system reliability underscore the importance of institutional trust. Robust cybersecurity safeguards, regular system audits, and transparent data governance policies are necessary to maintain stakeholder confidence (Apau & Koranteng, 2020). Fifth, policymakers must address *digital inclusion and equity*. Efficiency gains concentrated among urban users risk widening spatial disparities in access to justice. Investment in rural broadband infrastructure and digital literacy initiatives can mitigate the unequal distribution of reform benefits. For judicial managers, the findings highlight the importance of change management strategies. Digital transformation requires workflow redesign, monitoring of utilisation metrics, and continuous feedback loops to identify implementation challenges. Evaluating reform success should extend beyond system deployment statistics to include measures of procedural reliability, user confidence, and equitable access. In summary, sustainable economic returns from judicial digitalisation depend

on systemic institutional alignment. Policymakers and judicial administrators should therefore prioritise coherence, infrastructure, and capacity over rapid technological expansion alone.

Limitations and Future Research

While this study provides theoretically grounded insight into the institutional mediation of economic effects arising from judicial digitalisation in Ghana, several limitations warrant careful consideration.

First, the qualitative multiple-case study design prioritises analytical depth over statistical generalisability. The findings illuminate mechanisms and institutional processes rather than generating population-level estimates of economic magnitude. Although purposive sampling enabled rich cross-stakeholder comparison, the modest sample size limits broad generalisation across all courts within Ghana. Future research employing mixed-method or quantitative approaches could complement these insights by measuring cost savings, time-to-resolution reductions, and system-level performance indicators across a larger dataset.

Second, the analysis relies partially on participant-reported experiences of efficiency gains and cost reduction. While triangulated with documentary evidence, these perceptions were not monetised or subjected to formal cost–benefit modelling. Future research could conduct quantitative cost–benefit analysis incorporating judicial expenditure data, litigation duration statistics, and firm-level productivity measures to estimate the financial return on digital justice investment (Ikuesan, 2024).

Third, the study adopts a cross-sectional design capturing digitalisation at a specific stage of reform implementation. Digital justice reforms evolve through phases of introduction,

consolidation, and institutionalisation. Longitudinal studies would allow examination of whether observed efficiency gains persist, expand, or diminish over time as systems mature and infrastructure improves.

Fourth, although comparative evidence from Rwanda and South Africa informs the discussion, the study does not conduct primary cross-country fieldwork. Future comparative qualitative research could more systematically analyse how political commitment, regulatory design, and fiscal capacity shape institutional alignment across diverse African jurisdictions.

Fifth, further research is warranted to explore distributional implications in greater depth. The findings suggest uneven benefits across urban and rural contexts, but future studies could examine how digital justice reforms interact with socio-economic inequality, legal awareness, and informal dispute resolution practices.

Addressing these limitations would deepen understanding of how digital justice reforms operate across institutional environments and over time. Integrating qualitative mechanism analysis with quantitative performance measurement would provide a more comprehensive evidence base for sustainable judicial digitalisation policy.

Conclusion

This study examined how judicial digitalisation in Ghana influences administrative efficiency and transaction costs and how institutional alignment mediates these economic effects. The findings demonstrate that digital court reforms generate measurable administrative improvements, including reduced clerical workload, enhanced document retrieval speed, improved scheduling predictability, and lower selected litigation-related travel and opportunity

costs. These outcomes confirm that digital technologies can reduce procedural friction within judicial systems. However, the study also shows that these gains are conditional and uneven. Digitalisation does not automatically translate into systemic economic transformation. Efficiency improvements are concentrated in courts with stable infrastructure and among stakeholders with reliable digital access and competence. In jurisdictions facing connectivity disruptions or limited execution capacity, gains are partial and occasionally interrupted. Cybersecurity concerns further influence stakeholder confidence and shape institutional trust.

These findings challenge technologically deterministic assumptions within digital governance discourse. Rather than treating digital adoption as inherently efficiency-enhancing, the analysis demonstrates that institutional alignment determines whether potential economic benefits are realised and sustained. Infrastructural adequacy, regulatory coherence, execution capacity, cybersecurity safeguards, and digital literacy collectively mediate reform outcomes.

Comparative insights from Rwanda and South Africa reinforce this conclusion. Rwanda's coordinated governance and sustained investment facilitated more uniform efficiency gains (Viebach, 2023; Philomène, 2024), while South Africa's fragmented implementation limited systemic impact despite technological capability (Holness, 2024). Ghana's experience reflects an intermediate position, illustrating both measurable progress and persistent structural constraints.

Theoretically, the study refines institutional implementation and transaction-cost perspectives by demonstrating that digital reform outcomes are institutionally conditioned. Transaction-cost reductions occur not directly through technological adoption but through effective utilisation supported by coherent governance structures. Digital justice reform should therefore be conceptualised as a conditional efficiency mechanism rather than a self-executing

technological upgrade. Practically, sustainable economic returns require long-term institutional commitment. Investment in infrastructure, regulatory harmonisation, capacity-building, and cybersecurity enforcement is essential to prevent efficiency gains from plateauing or diminishing over time. Judicial digitalisation in Ghana represents a significant step toward modernising court administration and enhancing procedural efficiency. Yet its economic value ultimately depends on the strength and coherence of the institutional ecosystem in which it operates. Where alignment is sustained, digital justice reforms can strengthen economic governance. Where alignment is weak, gains remain uneven and fragile, as illustrated in Table 2.

Table 2: *Policy Alignment Requirements for Sustainable Economic Impact*

Reform Objective	Required Institutional Alignment	Risk if Misaligned	Policy Priority Level
Administrative Cost Reduction	Stable funding for ICT infrastructure	System deterioration; reversal of efficiency gains	High
Nationwide Access	Broadband expansion and digital literacy programmes	Deepened digital inequality	High
Data Protection & Trust	Strengthened cybersecurity frameworks and enforcement	Institutional distrust; legal challenges	Critical
Procedural Standardisation	Harmonised digital court regulations	Fragmented implementation	High
Long-Term Sustainability	Continuous capacity-building for judicial staff	Reform stagnation	High

Source: Field Data (2025)

Ultimately, the Ghanaian case demonstrates that the economic significance of judicial digitalisation lies not in technology itself, but in the country’s capacity to embed technology

within resilient institutions. Digital courts should therefore be viewed as instruments of broader governance reform through which efficiency, transparency, and access to justice can be simultaneously advanced. For policymakers across developing jurisdictions, the central lesson is clear: investments in software and platforms must be matched by investments in infrastructure, human capability, regulatory coherence, and public trust. When these complementary conditions are secured, judicial digitalisation can evolve from an administrative modernisation project into a strategic driver of inclusive economic development and stronger rule-of-law institutions.

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