

E-Governance Applications and Development Control Administration in Rivers State

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Abstract

This study examined the relationship between e-governance application in architectural, structural, and technical drawing vetting and development control administration in Rivers State. The study was necessitated by the continued reliance on manual drawing submission, physical document handling, visual compliance checking, and printed building standards within the planning administration system, despite the growing emphasis on digital governance. A mixed-methods research design was adopted within a pragmatist paradigm, integrating quantitative survey data with qualitative semi-structured interviews. The study population comprised 3,692 relevant staff, professionals, applicants, and stakeholders across the Rivers State Ministry of Urban Development and Physical Planning, Rivers State Ministry of Lands and Survey, and Greater Port Harcourt City Development Authority. A sample of 361 respondents was determined using the Taro Yamane formula, while 397 questionnaires were administered after allowing for attrition. 358 valid questionnaires were retrieved for analysis, representing a 90.2% usable response rate. Data were analysed using descriptive statistics and Pearson Product-Moment Correlation, while interview data were analysed thematically. Findings showed that respondents disagreed that e-governance had been adequately applied to architectural, structural, and technical drawing vetting, with a grand mean of 2.34. They also disagreed that development control administration in the function was favourable, with a grand mean of 2.31. Pearson correlation revealed a positive but weak and statistical relationship between e-governance application and development control administration at ($r = 0.210$, $t = 4.05$, $df = 356$, $p < .05$). The null hypothesis was therefore rejected. Qualitative findings confirmed that drawing vetting remained substantially manual, with no software-assisted compliance-checking system or digital reference-standards library. The study concluded that limited e-governance application constrained improvements in technical drawing vetting and development control administration in Rivers State. Accordingly, the study recommended that the concerned ministries should procure and deploy software-assisted compliance-checking tools and a digital reference-standards library for its Architecture and Works unit, since the finding that technical drawing vetting remains a wholly manual, visual exercise, with the lowest facilitating-conditions profile of any function examined, indicates that this function's weak relationship is attributable to a specific, resolvable infrastructural gap rather than to any deeper allocational constraint.

Keywords: E-Governance, Technical Drawing, Vetting, Development Control, Administration.

Introduction

Despite the demonstrated benefits of e-governance in comparable Nigerian planning jurisdictions, development control administration in the Rivers State Ministry of Urban Development and Physical Planning continues to exhibit the characteristics of a largely manual system. Building plan applications are processed on paper; drawings are physically routed between the Control Department, the Architecture and Works unit, and the Accounts unit, creating a sequential bottleneck at each stage; land title verification depends on manual correspondence with the land registry; planning fees are assessed and, in many instances, collected in person; and field inspection and enforcement records are kept on paper files rather than in a centralised, trackable system (Eriaye, 2022; Diriyai *et al.*, 2026). These conditions have coincided with weak enforcement of development control, unauthorised construction, and disorganised urban sprawl within Port Harcourt and its environs (Chike & Arokoyu, 2021), and with residents' persistent perception that planning administration in Rivers State is neither sufficiently transparent nor adequately participatory (Dike-Nwamu & Kpang, 2026).

The problem is not evenly distributed across the Ministry's functions, and a closer examination of each function suggests that the manner and depth of the difficulty differs from one stage of the permit chain to the next. Application intake and permit approval within the Control Department continue to depend on the physical submission of drawings and supporting documents, exposing applicants to the risk of file misplacement and obliging them to make repeated personal visits merely to ascertain the status of a pending application. Technical drawing vetting within the Architecture and Works unit likewise proceeds by manual comparison of successive drafts, a process in which it is difficult to detect precisely what has changed between one submission and the next, and one that remains dependent on the personal availability of individual reviewing officers. Land-use zoning and spatial verification are undertaken largely through physical site inspection and reference to paper-based master plans rather than through any digital cadastral base map or automated zoning overlay, notwithstanding that Rivers State's own city master plan has itself been criticised in the wider planning literature for its age and its limited accessibility to the public. Land title verification proceeds through manual correspondence between the Ministry and the land registry, a process that can extend over several weeks and that leaves no digital record against which future disputes over the same parcel of land can be readily checked. Planning fee assessment and payment are, similarly, conducted largely in person at the Ministry's cashier points, with no integrated online payment gateway comparable to those already in operation in Lagos State. Field inspection, monitoring, and enforcement depend on physical site visits recorded on paper rather than on any Geographic Information System-based tool capable of supporting real-time verification of ongoing construction against an approved plan. Taken together, these six areas of difficulty correspond precisely to the six constituent functions through which the Ministry discharges its development control mandate, and it is this correspondence that the present study exploits in structuring its objectives. These persistent manual practices carry consequences that extend well beyond simple inconvenience to applicants. The absence of an auditable digital trail through each stage of permit processing creates conditions in which informal payment and selective enforcement can flourish unchecked, a concern that residents themselves have raised in connection with demolitions carried out without what they consider adequate compensation (Dike-Nwamu & Kpang, 2026). The reliance on physical file movement between departments has, in comparable Nigerian planning authorities, been associated with lost files, inconsistent record-keeping, and an inability of Ministry leadership to monitor, in real time, how quickly or slowly applications are being

processed at any given stage (Diriyai *et al.*, 2026). Unauthorised construction, disorganised urban sprawl, and a poorly regulated built environment have followed in the wake of these administrative weaknesses, as documented in the measured physical expansion of Port Harcourt's built-up area over the past four decades (Chike & Arokoyu, 2021).

A further difficulty is that no existing study has examined e-governance adoption within the Rivers State Ministry of Urban Development and Physical Planning at the level of its specific constituent functions. Available Rivers State e-governance scholarship has concentrated on university administration (Ojigini *et al.*, 2025) and on the Ministry of Information while available Rivers State development control scholarship has concentrated on urbanisation patterns and enforcement law generally (Chike & Arokoyu, 2021; Eriaye, 2022), without disaggregating the Ministry's operations into the distinct functional units identified above, namely building plan application and permit approval, technical drawing vetting, zoning and Geographic Information System-based spatial verification, land title and record management, revenue assessment and payment, and field inspection, monitoring, and enforcement, in order to determine the extent of e-governance adoption and its relationship with development control administration within each. Consequently, the Ministry's own management, and the wider Rivers State public, currently lack a function-specific evidence base with which to judge which aspects of development control administration have benefited from digitisation, and which remain in need of reform.

The result is a state of affairs in which the rhetoric of digital transformation, prominent in Nigeria's national information and communication technology policy pronouncements and echoed in Rivers State's own public institutions, has yet to be matched by any systematic account of how far, if at all, that transformation has reached the specific administrative functions through which the Ministry of Urban Development and Physical Planning actually processes, approves, monitors, and enforces development permits. Whether e-governance has meaningfully altered building plan application and approval, technical drawing vetting, zoning and spatial verification, land title and record management, revenue assessment and payment, or field inspection and enforcement, considered individually, and whether any such changes have improved the efficiency and effectiveness of development control administration as residents and developers actually experience it, remains an open empirical question. It is this question, addressed at the level of each of the Ministry's constituent functions rather than at the level of generalised institutional rhetoric that this study sets out to investigate. The objective of the study was to assess the relationship between e-governance application in architectural, structural, and technical drawing vetting and the level of development control administration in Rivers State. Arising from the objective, this study sought to answer the research question of how e-governance application in architectural, structural, and technical drawing vetting relate to the level of development control administration in Rivers State? In line with the question, the null hypothesis that there is no relationship between e-governance adoption in building plan application and permit approval processing and the level of development control administration in Rivers State was formulated to guide the study.

Theoretical Review

Unified Theory of Acceptance and Use of Technology (UTAUT)

This study is also anchored on the Unified Theory of Acceptance and Use of Technology, propounded by Viswanath Venkatesh, Michael G. Morris, Gordon B. Davis, and Fred D. Davis (2003) in their seminal article proposing a unified view of user acceptance of information technology, published in MIS Quarterly. Venkatesh *et al.* (2003) developed the theory through a

systematic empirical comparison and synthesis of eight prominent, and until then largely competing, technology-acceptance models, namely the Theory of Reasoned Action, the Technology Acceptance Model itself, the Motivational Model, the Theory of Planned Behaviour, a combined Theory of Planned Behaviour and Technology Acceptance Model, the Model of PC Utilisation, Innovation Diffusion Theory, and Social Cognitive Theory. Reviewing longitudinal data collected from employees at four organisations over a six-month adoption period, Venkatesh *et al.* (2003) found that no single one of the eight prior models, taken alone, offered as strong an account of variance in technology-usage behaviour as a unified model combining their most robust constructs, and on this basis proposed a single integrated theory positing four core determinants of behavioural intention and use behaviour: performance expectancy, understood as the degree to which an individual believes that using the system will help him or her attain gains in job performance; effort expectancy, understood as the degree of ease associated with using the system; social influence, understood as the degree to which an individual perceives that important others believe he or she should use the new system; and facilitating conditions, understood as the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system. Other notable contributors to the theory include Venkatesh, Thong, and Xu (2012), who extended the original organisational formulation into UTAUT2, incorporating hedonic motivation, price value, and habit as additional determinants relevant to consumer, rather than purely workplace, technology adoption, and demonstrating that the extended model explained a substantially greater share of variance in behavioural intention and technology use than the original organisational model when applied to voluntary consumer contexts. Williams, Rana, and Dwivedi (2015) conducted a comprehensive systematic review of the accumulated empirical UTAUT literature, cataloguing the diverse organisational, cultural, and technological contexts across which the theory had by then been tested and identifying performance expectancy as the most consistently significant predictor of behavioural intention across this body of work, with facilitating conditions emerging as a comparatively stronger and more consistent predictor of actual use behaviour in resource-constrained settings than in well-resourced ones. Dwivedi, Rana, Jeyaraj, Clement, and Williams (2019) subsequently undertook a meta-analytic reappraisal of the theory's constituent relationships, confirming the general robustness of the four core constructs while also documenting meaningful variation in their relative strength across national and organisational contexts, a finding with direct bearing on the theory's application to a Nigerian state ministry operating under infrastructural conditions considerably different from the well-resourced organisations in which the theory was originally developed and validated. The underlying principles of the Unified Theory of Acceptance and Use of Technology centre on several interconnected propositions that extend, rather than merely restate, those of its constituent predecessor models. First, the theory establishes that technology adoption is jointly determined by performance-related and effort-related expectancy beliefs, echoing the Technology Acceptance Model's usefulness and ease-of-use constructs but reframing them explicitly around anticipated job performance gains rather than a more diffuse sense of usefulness. Second, and distinctively, the theory incorporates social influence as a direct determinant of behavioural intention, formally recognising that an individual's decision to adopt a given technology within an organisation is shaped not only by that individual's own private beliefs but by the perceived expectations of supervisors, colleagues, and other institutionally significant others, a mechanism with particular relevance to hierarchically organised public bureaucracies such as a government ministry. Third, and most distinctively of all relative to the Technology Acceptance Model, the theory establishes facilitating conditions as a direct

determinant not merely of behavioural intention but of actual use behaviour itself, formally acknowledging that an individual may hold entirely favourable beliefs about a technology's usefulness and ease of use and nonetheless be unable to use it where the requisite organisational and technical infrastructure, reliable electricity, functioning hardware, adequate training, or technical support, is absent. Fourth, the theory specifies that each of these four core relationships is moderated by gender, age, experience, and voluntariness of use, such that the relative importance of, for example, social influence versus facilitating conditions in predicting adoption will differ systematically across different categories of user and different stages of a technology's institutional life. The basic assumptions of the Unified Theory of Acceptance and Use of Technology provide the analytical foundations upon which its explanatory framework rests. First, the theory assumes that the four core constructs, though derived from eight distinct prior theoretical traditions, are sufficiently compatible in their underlying conception of human motivation and behaviour to be combined within a single coherent model, an assumption that has attracted less controversy than the model's practical complexity has. Second, the theory assumes that facilitating conditions, as an organisational and infrastructural variable, can meaningfully be measured and analysed at the same individual level of analysis as the model's other, more psychological constructs, an assumption that becomes strained where infrastructural conditions vary more by institutional unit, in this study, by Ministry function, than by individual official. Third, the theory assumes that behavioural intention remains a meaningful mediating construct between belief and actual use even once facilitating conditions are permitted to act directly on use behaviour, such that both the belief-driven and the infrastructure-driven pathways to technology use operate simultaneously rather than as alternatives to one another. Fourth, the theory assumes, in common with its predecessor models, that the individual remains the appropriate unit of analysis for explaining technology adoption, notwithstanding its explicit incorporation of social and organisational variables, a scope condition this study addresses by aggregating individual-level adoption patterns within the Ministry's six functions rather than treating the Ministry as an undifferentiated whole. Critics of the Unified Theory of Acceptance and Use of Technology have identified several important limitations. First, Bagozzi (2007) argues that in synthesising eight prior models into a single framework comprising four core constructs, four moderating variables, and their associated interaction terms, the theory has become so structurally elaborate, involving upwards of forty distinct predictive relationships in its full specification, as to sacrifice the parsimony that gives a good theory its explanatory and practical value, effectively substituting descriptive comprehensiveness for genuine theoretical insight. Second, Williams, Rana, and Dwivedi's (2015) systematic review documents considerable inconsistency in the empirical significance of the model's moderating variables across studies, with age, gender, and experience each found to significantly moderate core relationships in some studies and to exert no discernible moderating effect in others, raising doubts about whether the moderators function as reliably as the original formulation proposed. Third, Dwivedi *et al.*'s (2019) meta-analysis found that the theory's predictive validity, while respectable within organisational contexts resembling those in which it was originally developed and tested, declines when the theory is transplanted into markedly different institutional and infrastructural settings, a limitation of direct relevance to the theory's application to a Nigerian state government ministry.

This study addresses these limitations by employing the Unified Theory of Acceptance and Use of Technology specifically for its facilitating-conditions construct, which the Technology Acceptance Model omits and which the Nigerian e-governance literature consistently identifies

as the decisive constraint on public-sector technology adoption, rather than attempting to operationalise the theory's full structural complexity in its original organisational-behaviour form. Afieroho, Perkins, Zhou, Hoanca, and Protasel (2023), applying the theory to e-government adoption for monitoring public infrastructure projects in Nigeria, provide direct empirical support for this targeted use of the theory, finding that facilitating conditions, alongside performance expectancy, effort expectancy, and social influence, significantly and positively predicted Nigerian respondents' behavioural intention to adopt e-government tools, a finding that confirms the theory's continued relevance to Nigerian public-sector technology adoption notwithstanding the infrastructural differences between the Nigerian and originally studied American organisational contexts. The Unified Theory of Acceptance and Use of Technology is applied to the present study through three principal analytical operations. First, its facilitating-conditions construct supplies the theoretical justification for this study's expectation that e-governance adoption, and consequently its relationship with administrative efficiency and effectiveness, differs systematically across the Ministry's six functions according to the infrastructural and technical support each function currently receives, independently of how useful or easy to use officials within that function may otherwise perceive the relevant electronic tool to be. Second, its social-influence construct supplies a complementary explanation, alongside officials' own individual-level usefulness and ease-of-use beliefs, for the diffusion of e-governance adoption within a given function: where senior officials or supervisors within the Control Department, for example, visibly use and endorse an electronic tool, subordinate staff are, on the theory's account, more likely to adopt it themselves regardless of their own independent assessment of its usefulness. Third, the theory's moderator structure alerts this study to the possibility that adoption patterns, and the strength of the relationship between adoption and administrative outcomes, may differ meaningfully between more and less experienced officials within the same function, a consideration this study accounts for descriptively even where it is not the primary focus of its function-disaggregated design.

Conceptual Discourse

E-Governance and Public Service Delivery

A substantial strand of the literature examines the relationship between e-governance adoption and the quality of public service delivery more broadly. Ogu and Chukwurah (2023), studying the Anambra State Civil Service between 2018 and 2022, found that e-governance had improved how public services were delivered across the state civil service, with respondents reporting gains in the speed and reliability of service provision following digitisation. Nnaji and Nri (2022), examining selected ministries and departments across Nigeria's south-eastern states between 2010 and 2021, similarly found a significant relationship between electronic governance and public-sector service delivery, though their study also documented that inadequate facilities, poor funding, weak capacity-building, and poor internet access continued to constrain the depth of that relationship in practice. Within Rivers State specifically, Ojigini, Egobueze, and Amadi (2025) found that e-governance adoption at Rivers State University, spanning student registration, examinations, results processing, and transcript production, had measurably improved transparency, reduced corruption, and increased administrative efficiency, even though the university's digitisation was itself markedly uneven across its constituent administrative units. Taken together, this literature suggests that the relationship between e-governance adoption and service delivery outcomes in Nigerian public institutions is real but conditional, dependent on the presence of adequate facilitating conditions rather than on the mere existence

of digital tools. This conditional relationship becomes more precise once public service delivery is disaggregated into its constituent quality dimensions rather than treated as a single undifferentiated outcome, an approach directly analogous to this study's own disaggregation of development control administration into six discrete functions. The literature commonly identifies speed, the time elapsed between a citizen's request and its fulfilment; accuracy, the freedom of the resulting output from error; accessibility, the ease with which a citizen or business can initiate and track a transaction; cost, the direct and indirect expense a citizen or business incurs in securing the service; and transparency, the degree to which the process and its outcome are visible and explicable to the person affected by it, as the principal dimensions along which e-governance's contribution to service delivery is typically assessed. Zoleh's (2026) case study of digital governance across selected Nigerian federal ministries, departments, and agencies found that digitisation improved these dimensions unevenly rather than uniformly, with gains in accessibility and transparency generally outpacing gains in speed and cost, a pattern that, if it recurs within the Ministry of Urban Development and Physical Planning, would imply that e-governance adoption might improve applicants' ability to track and understand the status of their permit applications well before it meaningfully shortens the time such applications actually take to process. Citizen trust and satisfaction constitute a further, related dimension of public service delivery that the literature treats as both an outcome of, and a precondition for, successful e-governance adoption. Shenkoya (2023) found that the transparency and accountability gains associated with Nigerian digital transformation initiatives were themselves contingent on the degree of citizen trust already reposed in the underlying government systems, such that digitisation of a service citizens already distrusted tended to produce more modest gains in perceived transparency than digitisation of a service enjoying greater initial public confidence, a finding with a troubling implication for development control administration specifically, given that residents of Rivers State already report considerable scepticism about the fairness of existing enforcement practice (Dike-Nwamu & Kpang, 2026). This suggests that e-governance adoption within the Ministry's field inspection, monitoring, and enforcement function may face a distinctive uphill trust burden not shared equally by the Ministry's more transactional functions, such as fee payment, where citizen trust concerns are typically less acute even under a wholly manual system. Comparative evidence from other Anglophone African public administrations offers further insight into the conditions under which e-governance adoption translates into genuine service delivery improvement rather than merely cosmetic digitisation. Studies of e-government adoption in Ghana's public sector have identified structural conditions, adequate budgetary allocation, sustained political commitment across changes of government, and employee affective orientation, the degree to which civil servants themselves feel positively disposed toward a new digital system rather than threatened by it, as decisive intervening variables between the formal introduction of an e-governance platform and its translation into measurably improved service delivery. This comparative evidence reinforces a theme already established through the Unified Theory of Acceptance and Use of Technology reviewed in the preceding theoretical review, namely that facilitating conditions, of which employee affective orientation and sustained political and budgetary commitment are clear examples, function as a necessary complement to, rather than a substitute for, the individual usefulness and ease-of-use beliefs the Technology Acceptance Model foregrounds, a convergence between the theoretical and comparative literatures that further strengthens the case for this study's combined theoretical framework. Within the specific context of sub-national, as distinct from federal, Nigerian public administration, the relationship between e-governance adoption and service delivery carries

additional complications worth noting before this review turns to physical planning administration specifically. State-level ministries in Nigeria typically operate with considerably smaller information and communication technology budgets, and correspondingly smaller dedicated technical staff, than federal ministries, departments, and agencies, a resource asymmetry that Akujuru and Napoleon (2025) identify as a persistent constraint on e-governance adoption within the Rivers State Ministry of Information specifically. State ministries are also, in Nigeria's federal system, more directly exposed to the fiscal volatility of state government revenue, which depends heavily on monthly federal allocation and, for oil-producing states such as Rivers State, on fluctuating oil prices, such that a state ministry's e-governance budget in any given year may be considerably less predictable than a federal agency's. These structural features of sub-national Nigerian public administration form an important part of the institutional backdrop against which this study's own findings regarding the Ministry of Urban Development and Physical Planning, a state-level rather than federal institution, ultimately needs to be interpreted.

E-Governance in Physical/Urban Planning Administration

Within physical planning administration specifically, e-governance takes a more specialised form than in general public service delivery, encompassing online planning permit portals, electronic submission and tracking of building plan applications, Geographic Information System-based zoning and parcel verification, digital land registry integration, integrated online payment platforms, and digital performance dashboards for monitoring approval timelines. Diriyai, Amatari-Breford, and Imaitor (2026) propose that a fully digitised planning authority should combine five such components into a single interoperable system: an online permit portal, a workflow automation engine, a Geographic Information System and spatial intelligence module, a centralised planning database, and a real-time monitoring dashboard. Empirical experience with these components in Nigeria remains uneven. Enisan, Omoyajowo, and Emmanuel (2024) demonstrate, through a working system prototype developed for Ondo State's Ministry of Physical Planning and Urban Development, that an e-planning application incorporating online registration, fee assessment, payment, inspection scheduling, and an administrative approval dashboard is technically feasible even in a state that had, at the time of the original study, no electronic planning infrastructure whatsoever (Enisan & Nicolas, 2023). By contrast, Odekunle and Hamed (2021) document that Lagos State's electronic Planning Permit platform, having gone live in 2016, achieved measurable reductions in processing time and improvements in applicant satisfaction, but also suffered a prolonged system breakdown between 2018 and 2019 arising from a contractual dispute with its technical vendor, illustrating that even a comparatively advanced Nigerian e-planning system remains vulnerable to institutional and contractual failure. Beyond permit approval itself, the literature on e-governance in physical planning administration extends into the two functions this study identifies as land-use zoning verification and land title verification, each of which depends on a distinct category of digital infrastructure. Abubakar, Muritala, Mbamara, and Popoola (2025), reviewing the use of Geographic Information System technology in Nigerian development control enforcement, found that satellite and aerial imagery-based change detection, combined with mobile field-inspection applications, allowed planning authorities in the states examined to identify unauthorised construction considerably earlier than reliance on manual site visits alone permitted, though the same study documented that data currency, the frequency with which underlying spatial datasets are updated, remained a persistent constraint on the reliability of GIS-

based enforcement across the Nigerian cases reviewed. On the land title side, Chukwunweike, Egolum, and Igwe (2025), assessing institutional capacity for land registry digitisation across Nigeria's South-South geopolitical zone, found that Rivers State's Certificate of Occupancy issuance process, notwithstanding partial digitisation of its records, still typically required three to six months to complete, a finding corroborated specifically for Rivers State by Akor and Ihuah (2024), who documented a land titling process spanning approximately fourteen distinct manual steps and identified this procedural length, rather than any single point of technological absence, as the principal obstacle to faster land title verification in the state. International comparison illuminates the outer bound of what a mature, fully digitised planning permit system can achieve, and by extension what remains to be built in the Nigerian, and specifically the Rivers State, case. The United Kingdom's national Planning Portal, in operation since the early 2000s, permits applicants to submit a planning application to any of several hundred local planning authorities through a single standardised online interface, automatically validates submitted documents against each authority's specific validation checklist before the application reaches a human case officer, and provides applicants with real-time status tracking throughout the determination process, functionality directly analogous to the Government-to-Citizen and Government-to-Business capabilities discussed in the preceding subsection. Singapore's planning and building-approval system goes further still, integrating its permit-approval workflow directly with a national Building Information Modelling mandate, under which large commercial developments must submit three-dimensional digital building models rather than two-dimensional drawings, allowing automated software-based checking of structural, fire-safety, and accessibility compliance well beyond what manual drawing vetting, of the kind this study's second objective examines, can achieve. These international benchmarks are not offered here as directly transplantable models, given the very different infrastructural, legal, and fiscal context of a Rivers State ministry, but rather as a reference point against which the more modest, incremental digitisation steps documented in the Nigerian literature, an online portal here, a GIS pilot there, can be properly calibrated as early-stage rather than advanced e-governance adoption. A further, comparative African data point comes from Kenya, where the National Construction Authority operates an Online Project Registration System requiring all construction projects above a specified value threshold to be registered digitally before work may lawfully commence. Assessment of regulatory compliance in construction projects in Nairobi City County found that the existence of this digital registration requirement improved the National Construction Authority's ability to track active construction projects across the county, but that actual regulatory compliance on individual sites remained only partially improved, since digital registration, on its own, did not resolve the separate, and largely still manual, challenge of physically inspecting registered sites for ongoing compliance once construction was under way (Lagat, Njuguna, Kivaa, & Mutungi, 2025). This Kenyan finding anticipates a distinction this study draws sharply between its first objective, permit application and approval, where digitisation more directly and immediately affects the administrative process itself, and its sixth objective, field inspection, monitoring, and enforcement, where digitisation of the initial registration or approval step does not, on the Kenyan evidence, automatically translate into improved on-the-ground compliance monitoring without dedicated further investment in the enforcement function specifically.

Method

The study adopted a mixed-methods research design within a pragmatist paradigm, combining quantitative survey data with qualitative semi-structured interviews. The study was conducted primarily at the Rivers State Ministry of Urban Development and Physical Planning, with the Rivers State Ministry of Lands and Survey and the Greater Port Harcourt City Development Authority serving as comparator agencies. The study population comprised 3,692 persons across the three institutions, including relevant staff, registered professionals, applicants, and stakeholders. A quantitative sample of 361 respondents was determined using the Taro Yamane formula, with an additional 36 questionnaires allowed for possible attrition, resulting in 397 questionnaires for administration. Stratified random, convenience, and purposive sampling techniques were employed as appropriate to the respondent categories. Primary data were collected through structured questionnaires and semi-structured interviews, while relevant institutional records, legislation, and scholarly sources provided secondary data. The questionnaire contained six e-governance and six administrative efficiency/effectiveness subsections, measured on a four-point Likert scale. Validity was established through expert review, while reliability was confirmed through Cronbach's alpha, with an overall coefficient of 0.80. Quantitative data were analysed using descriptive statistics and Pearson correlation, while qualitative data were subjected to thematic analysis and integrated through joint displays. Ethical principles of informed consent, confidentiality, anonymity, voluntary participation, and data security were observed throughout the study.

Data Presentation

Response Rate

Table 1: Questionnaire Distribution and Response Rate by Study Site

Study Site	Administered	Retrieved	Excluded	Valid/Usable	Response Rate (%)
Ministry of Urban Development and Physical Planning	182	171	7	164	90.1
Rivers State Ministry of Lands and Survey	143	134	5	129	90.2
Greater Port Harcourt City Development Authority	72	67	2	65	90.3
Total	397	372	14	358	90.2

Source: Field Survey, 2026.

Table 1 shows that, of the three hundred and ninety-seven (397) questionnaires administered across the three study sites, three hundred and seventy-two (372), representing 93.7 per cent, were retrieved, and three hundred and fifty-eight (358), representing a usable response rate of 90.2 per cent, were found valid for analysis following data cleaning. Fourteen retrieved questionnaires were excluded: nine for a substantial proportion of missing responses across Sections B and C, and five for internally inconsistent response patterns, such as identical responses marked for every item irrespective of content, consistent with the data-cleaning

procedure set out in Section 3.10. The response rate was broadly consistent across all three study sites, ranging narrowly from 90.1 per cent at the Ministry to 90.3 per cent at the Greater Port Harcourt City Development Authority, a pattern indicating that non-response and data-quality issues were not concentrated at, or peculiar to, any single site, and that the resulting valid sample of 358 can reasonably be treated as broadly representative of the combined accessible population described in Section 3.3. An overall usable response rate exceeding 90 per cent substantially exceeds the response-rate thresholds conventionally regarded as adequate for survey-based social science research, and is considered more than sufficient for the descriptive and correlational analysis this study undertakes.

Data Analysis

Architectural, Structural, and Technical Drawing Vetting

Table 2: Frequency Distribution and Mean Ratings on E-Governance Adoption - Architectural, Structural, and Technical Drawing Vetting

Questionnaires Item	SA (4)	A (3)	D (2)	SD (1)	N	Mean	Decision
1. Architectural and structural drawings can be submitted electronically for vetting.	38	119	141	60	358	2.38	Not accepted
2. Software tools are used to check submitted drawings for compliance with building standards.	31	112	148	67	358	2.30	Not accepted
3. Reviewing officers have access to digital reference standards during vetting.	31	112	148	67	358	2.30	Not accepted
4. Revisions to submitted drawings can be tracked electronically.	38	119	141	60	358	2.38	Not accepted
Grand Mean					358	2.34	Not accepted

Source: Field Survey, 2026. SA(4) = Strongly Agree, A(3) = Agree, D(2) = Disagree, SD(1) = Strongly Disagree; N = number of valid respondents.

Table 2 presents the item-by-item frequency distribution and mean ratings on e-governance adoption in architectural, structural, and technical drawing vetting. Item 1, addressing electronic submission of architectural and structural drawings, recorded 38 strongly agree and 119 agree against 141 disagree and 60 strongly disagree, yielding a mean of 2.38. Item 2, addressing the use of software tools to check drawings for compliance, recorded the lowest agreement across the entire twelve-subsection instrument, 31 strongly agree and 112 agree against 148 disagree and 67 strongly disagree, yielding a mean of 2.30. Item 3, addressing reviewing officers' access to digital reference standards, recorded an identical distribution, 31 strongly agree and 112 agree against 148 disagree and 67 strongly disagree, also yielding a mean of 2.30. Item 4, addressing electronic tracking of drawing revisions, recorded 38 strongly agree and 119 agree against 141 disagree and 60 strongly disagree, yielding a mean of 2.38. The near-uniform disagreement across all four items, consistent with this function's identification in Chapter Two as comparatively under-digitised relative to citizen-facing functions, indicates a generalised rather

than item-specific adoption deficit. The grand mean of 2.34 indicates that respondents, on average, disagreed that e-governance has been adopted in this function.

Table 3: Frequency Distribution and Mean Ratings on Development Control Administration Architectural, Structural, and Technical Drawing Vetting

Questionnaires Item	SA (4)	A (3)	D (2)	SD (1)	N	Mean	Decision
5. Technical drawing vetting is completed within a reasonable timeframe.	40	121	139	58	358	2.40	Not accepted
6. Vetting decisions are applied consistently across similar applications.	26	107	153	72	358	2.24	Not accepted
7. Errors in approved drawings are rare.	28	109	151	70	358	2.27	Not accepted
8. Applicants receive clear feedback on any drawing revisions required.	36	117	143	62	358	2.35	Not accepted
Grand Mean					358	2.31	Not accepted

Source: Field Survey, 2026. SA(4) = Strongly Agree, A(3) = Agree, D(2) = Disagree, SD(1) = Strongly Disagree; N = number of valid respondents.

Table 3 presents the item-by-item frequency distribution and mean ratings on development control administration in this function. Item 1, addressing whether technical drawing vetting is completed within a reasonable timeframe, recorded 40 strongly agree and 121 agree against 139 disagree and 58 strongly disagree, yielding a mean of 2.40. Item 2, addressing consistency of vetting decisions across similar applications, recorded the lowest mean within this subsection, 26 strongly agree and 107 agree against 153 disagree and 72 strongly disagree, yielding a mean of 2.24. Item 3, addressing whether errors in approved drawings are rare, recorded 28 strongly agree and 109 agree against 151 disagree and 70 strongly disagree, yielding a mean of 2.27. Item 4, addressing whether applicants receive clear feedback on drawing revisions required, recorded 36 strongly agree and 117 agree against 143 disagree and 62 strongly disagree, yielding a mean of 2.35. All four items recorded means below the agreement threshold, with consistency of vetting decisions (item 2) recording the lowest score, indicating that the absence of digitisation identified in Section B2 is directly associated with respondents' perception of inconsistent, rather than merely slow, administrative outcomes. The grand mean of 2.31 indicates that respondents, on average, not accepted on the basis that the level of development control administration in this function is favourable.

Test of Hypothesis

Ho: There is no relationship between e-governance adoption in architectural, structural, and technical drawing vetting and the level of development control administration in Rivers State.

Table 4: Pearson Correlation Analysis on E-Governance Adoption and Development Control Administration Architectural, Structural, and Technical Drawing Vetting

	E-Governance Adoption	Development Administration	Control
E-Governance Adoption	1	0.210*	
Development Administration	0.210*	1	
Control			1

*Correlation is significant at the 0.05 level (2-tailed). Source: SPSS Statistics Output, 2026.

Table 4: presents the correlation analysis on the extent and direction of the relationship between e-governance adoption and development control administration in architectural, structural, and technical drawing vetting. The table shows a correlation coefficient of $r = 0.210$ with a corresponding significant/probability value of 0.000. The correlation is positive but weak. Since the Significant/Probability Value (PV) $0.000 < 0.05$ (critical value), we reject the null hypothesis and conclude there is a significant relationship between e-governance adoption and development control administration in this function.

Converting r-value to t-value using the formula:

$$T = r \times \sqrt{(n-2)} / \sqrt{(1-r^2)}$$

Where $r = 0.21$ and $n = 358$, we get:

$$T = 0.21 \times \sqrt{(358-2)} / \sqrt{(1-0.21^2)}$$

$$0.21 \times \sqrt{356} / \sqrt{0.956} =$$

$$0.21 \times 18.868 / 0.978$$

$$3.962 / 0.978$$

$$= 4.05$$

With 356 degrees of freedom (df) and an alpha level of 0.05, the critical t-value is 1.967. Since the calculated t-value (4.05) is greater than the critical t-value (1.967), we reject the null hypothesis and conclude that there is a statistically significant, positive but weak, relationship between e-governance adoption and development control administration in architectural, structural, and technical drawing vetting in Rivers State.

Qualitative Findings

This function's qualitative evidence is drawn from a single key informant, a Senior Architectural Officer of the Ministry's Architecture and Works unit, responsible for technical drawing vetting. The Senior Architectural Officer confirmed that vetting remains a substantially manual, visual exercise, stating that "we still check every drawing by eye against the building code; software that could flag obvious violations before it reaches a reviewer's desk would save considerable time" (Senior Architectural Officer, personal communication, 2026). The informant elaborated that this manual process extends to the physical handling of submissions themselves, noting that "every submission is printed out and reviewed on paper; we simply do not have compliance-checking software here" (Senior Architectural Officer, personal communication, 2026), an account directly consistent with this function's item-level finding that the availability of compliance-checking software (item 2, Table 2) recorded the lowest mean across the entire twelve-subsection instrument.

The informant additionally identified the absence of digital reference standards as a compounding constraint, explaining that "our reviewing officers rely on printed copies of the

building code; there is no digital lookup system" (Senior Architectural Officer, personal communication, 2026). This constraint, the informant noted, is aggravated whenever standards are revised: "when a new standard is issued, it takes a while before every officer even has the updated printed version" (Senior Architectural Officer, personal communication, 2026).

Both narratives point to the same underlying constraint identified in this study's conceptual review: the absence of software-assisted, standards-referenced vetting tools, rather than any reluctance on the part of reviewing officers themselves, appears to be the binding constraint on digitisation within this function, consistent with the Unified Theory of Acceptance and Use of Technology's facilitating-conditions construct.

Discussion of Findings

Architectural, Structural, and Technical Drawing Vetting

This study found a weak, though statistically significant, relationship between e-governance application and the level of development control administration in technical drawing vetting ($r = 0.21$, $t = 4.05$), the second weakest of the six relationships tested. Descriptively, respondents recorded a grand mean of 2.34 on e-governance application and 2.31 on development control administration for this function, both below the agreement threshold, with the availability of software tools to check drawings for compliance (item 2, Table 2) recording the lowest mean across the entire twelve-subsection instrument. The qualitative findings, drawn from a Senior Architectural Officer of the Ministry's Architecture and Works unit, corroborated this quantitative picture in specific detail, describing a vetting process that remains substantially manual, conducted by eye against printed copies of the building code, with no software-assisted compliance-checking capability and no digital lookup system for reviewing officers. Theoretically, this finding is best explained not by Urban Bias Theory but by the Unified Theory of Acceptance and Use of Technology's facilitating-conditions construct. The qualitative theme identifying the absence of compliance-checking software as the principal gap points to an infrastructural rather than an attitudinal or allocational barrier to adoption, since this function, unlike permit approval or land title verification, is not itself a commercially transactional interface in the sense Urban Bias Theory's predictive logic requires; developers and applicants have comparatively little direct commercial stake in how a Ministry officer internally vets a drawing, weakening the demand-side pressure toward digitisation that proved decisive for permit approval. The absence of this commercial pressure, combined with the absence of the software tools themselves, jointly explains why this function records one of the weakest facilitating-conditions profiles of any examined in this study. This finding aligns closely with Okeke, Sam-amobi, and Okeke's (2020) finding that Nigerian planning authorities frequently lack systematic, software-assisted means of vetting submitted drawings, relying instead on manual visual inspection against printed standards, a practice their study directly links to the persistence of building collapse in Nigerian cities. The specific qualitative account this study obtained, of drawings checked entirely by eye against printed code, is a close real-world instantiation of the exact institutional weakness Okeke, Sam-amobi, and Okeke describe in the abstract.

This finding diverges, however, from the more optimistic picture offered by Okonta, Oluigbo, Okeke, Nnaa, Mgbemena, and Alhassan (2025), who demonstrate that digitising the verification and administrative sub-components of a technical review process, document submission, payment, status tracking, rather than the core professional judgement itself, can yield meaningful efficiency gains even where technical assessment remains a human function. This study's finding of a near-total absence of even this more limited, sub-process digitisation, evidenced by the item-

level score for electronic submission of drawings (item 1, Table 2) sitting only marginally above the weakest items in the subsection, suggests that the Ministry has not yet undertaken even the partial digitisation Okonta and colleagues identify as both feasible and beneficial, marking a more pronounced digitisation deficit in Rivers State's technical drawing vetting than the comparative literature would lead one to expect.

Summary of Findings

With respect to the objective, the study found a weak, though statistical relationship between e-governance application and the level of development control administration in architectural, structural, and technical drawing vetting ($r = 0.21$, $t = 4.05$), the second weakest relationship recorded. Descriptive analysis recorded grand means of 2.34 and 2.31, both below the agreement threshold, and qualitative findings confirmed that vetting remains a substantially manual, visual exercise, with no software-assisted compliance-checking capability and no digital reference standards available to reviewing officers.

Conclusion

The study concluded that e-governance adoption had a positive and statistical although weak relationship with the level of development control administration in architectural, structural, and technical drawing vetting in Rivers State. Respondents disagreed that e-governance had been adequately adopted in this function, as indicated by the grand mean of 2.34, while the grand mean of 2.31 showed an unfavourable assessment of development control administration. Electronic submission and electronic tracking of drawing revisions recorded relatively higher mean scores of 2.38, whereas software-assisted compliance checking and access to digital reference standards recorded the lowest means of 2.30. The Pearson correlation result showed a positive but weak relationship between e-governance adoption and development control administration ($r = 0.210$), while the calculated t-value of 4.05 exceeded the critical value of 1.967 at 356 degrees of freedom and the 0.05 significance level. The null hypothesis was therefore rejected. Qualitative evidence further established that technical drawing vetting remained substantially manual, with reviewing officers checking drawings visually against printed building codes and lacking software-assisted compliance-checking and digital reference systems. The study therefore concluded that limited e-governance adoption constrained improvements in technical drawing vetting, particularly in processing consistency, error reduction, timeliness, and feedback to applicants. The finding underscored the need for appropriate digital infrastructure, compliance-checking software, updated digital standards, and institutional capacity to strengthen development control administration in Rivers State.

Recommendation

Arising directly from the findings summarised and the conclusions drawn, this study makes the recommendation that the Ministry should procure and deploy software-assisted compliance-checking tools and a digital reference-standards library for its Architecture and Works unit, since the finding that technical drawing vetting remains a wholly manual, visual exercise, with the lowest facilitating-conditions profile of any function examined, indicates that this function's weak relationship is attributable to a specific, resolvable infrastructural gap rather than to any deeper allocational constraint.

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