

Digital Governance and Citizen Engagement in National Identity Card Management in Rivers State, 2015-2026

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Abstract

This study examined digital governance and citizen engagement in national identity card management in Rivers State, Nigeria, between 2015 and 2026, with particular reference to the operations of the National Identity Management Commission (NIMC). The study was guided by four objectives, namely to assess the nature and implementation of NIMC's digital governance practices, to examine the extent to which digital platforms and enrolment systems have enhanced citizen engagement, to identify the challenges hindering effective engagement, and to investigate the prospects of digital governance for strengthening inclusive and democratic public administration. Anchored in the Technology Acceptance Theory, the study adopted a convergent parallel mixed-methods design, drawing on structured questionnaires administered to 315 registered NIN holders selected through multi-stage sampling, and key informant interviews conducted with ten purposively selected NIMC officials. Quantitative data were analysed using descriptive statistics and simple linear regression, while qualitative data were analysed thematically. Findings revealed that digital governance practices ($R^2 = .520$) and digital platforms and enrolment systems ($R^2 = .571$) exerted statistically significant positive effects on citizen engagement, although implementation remained uneven, particularly regarding online portal accessibility and mobile enrolment outreach to riverine communities. Infrastructural challenges, notably poor internet connectivity and system downtime, were identified as the most significant barriers ($R^2 = .411$), outweighing digital literacy concerns. The prospects of digital governance for strengthening inclusive public administration recorded the strongest relationship ($R^2 = .614$), reflecting strong optimism among respondents. The study concludes that citizen engagement is sustained primarily by the perceived usefulness of the National Identification Number rather than by ease of access, given persistent infrastructural deficits. It recommends sustained investment in connectivity, restoration of mobile enrolment

units, and strengthened data protection to advance inclusive digital identity governance in Rivers State.

Keywords: *Digital Governance; Citizen Engagement; National Identity Management; Digital Platforms; Public Administration.*

Introduction

The twenty-first century has seen a deep transformation of governance, driven in large part by rapid progress and increased reliance on information and communication technologies (ICT) (Park, 2025). Governments around the world are redefining how they interact with citizens, provide public services and manage administrative processes by embracing digital innovation (Assamie, 2024). This transformation, commonly referred to as digital governance or e-government, involves the strategic use of digital tools such as the Internet, mobile technology, data analytics and artificial intelligence to improve efficiency, accountability, transparency and citizen engagement in the public administration (Bannister and Connolly, 2014). Grigalashvili (2023) noted that the advent of digital governance therefore represents a technological shift and fundamental reconfiguration of relations between the state and the citizen, with openness, responsiveness and inclusion being considered fundamental principles of democratic governance. Globally, digital governance has become a central element in the modernization of the state and the reform of the public sector. Apleni and Smuts (2020) noted that countries with advanced digital infrastructures have shown that adopting e-government systems can significantly reduce red tape, increase accountability and encourage citizens' engagement in decision-making. Estonia, for example, is widely recognised for its comprehensive digital identity and residence systems, which allow citizens to vote electronically, access government services online and make official transactions with minimal physical contact with the authorities (Margetts and Dunlavy, 2013). Similarly, countries such as South Korea and Singapore have developed highly integrated digital governance platforms that enable seamless access to government services, thereby increasing the efficiency of administrations and public confidence (Apleni & Smuts, 2020). These experiences show that digital governance is not limited to the use of technology but involves a wider transformation of governance structures that aims to empower citizens and to enhance democratic engagement. Citizen engagement, widely considered a cornerstone of democratic governance, is an essential element of digital governance (Mehra, 2026). In modern public administration, the success of digital government initiatives depends to a large extent on the degree of engagement of citizens in the governance process (Mehra, 2026). According to the UN (2020a), citizen electronic engagement is a key driver for efficient digital governance, as it enables individuals to not only access public services, but also to contribute to policy formulation, monitor government activities and influence policy decisions through digital platforms. Macintosh (2004) argues that digital engagement mechanisms allow governments to involve citizens in consultation, debate and collective decision-making, thus improving the quality and legitimacy of public policy. In addition, Peixoto and Fox (2016) note that digital engagement increases accountability by creating channels through which citizens can demand transparency and assess the performance of governments. As a result, governments around the world are increasingly adopting strategies to strengthen citizens' involvement in digital governance frameworks (UN, 2020b). Traditional governance models often limited citizens' engagement to periodic elections, with individuals having little or no opportunity to influence decision-making outside of the ballot box (Madryha et al., 2026). However, the development of digital technologies has widened the scope of engagement by allowing for continuous interaction between citizens and government institutions (Ibrahim et al., 2016). Through online portals, mobile applications, social media

platforms, and open data initiatives, citizens can now participate in policy consultation, monitor the delivery of services, and demand accountability in real time (see Chadwick, 2011). This shift will transform the role of citizens from passive beneficiaries of public services to active partners in governance, fostering more inclusive, transparent and responsive political systems. In Africa, the debate on digital governance is particularly important given the continent's demographic growth, urbanisation and growing access to mobile and internet technologies (Ibrahim et al., 2016). Africa has one of the fastest growing youth populations in the world, combined with increasing levels of digital literacy and mobile phone penetration, which creates favourable conditions for reforms in governance based on ICT (World Bank, 2021). Several African countries have started to adopt digital platforms for tax administration, election management, health care and utilities (Ndung'u & Signe, 2020). Rwanda, for example, has developed an ICT-driven governance, integrating digital systems into public administration to increase efficiency and attract foreign investment (Ndung'u & Signe, 2020). These developments show that digital governance has the potential to strengthen the capacity of governments, improve the delivery of services and increase the engagement of citizens across the continent. In Nigeria, digital governance is increasingly recognised as a key strategy for administrative modernisation, democratic accountability and improved interaction between the state and its citizens (Ibrahim et al., 2016). As the most populous country in Africa, Nigeria faces significant challenges in managing public resources, providing services and ensuring inclusive governance and in response, successive governments have put in place various digital initiatives to improve efficiency and increase the involvement of citizens in public administration (see Suku and Abdullahi, 2025). One notable initiative is the National Identification Number (NIN) programme, implemented by the National Identity Management Board (NIMB), which gives citizens a unique digital identity for basic services such as banking, telecoms and social services (Aikomo, 2025). The establishment of a reliable national database enhances the government's capacity to plan effectively while also strengthening citizens' inclusion in national administrative systems (Adeleke, 2021). Similarly, the digitisation of the tax administration by the Federal Inland Revenue Service (FIRS) has improved revenue collection by introducing electronic filing and payment systems, which reduce red tape and corruption opportunities (Oyejo and Ezejiofor, 2019). Government agencies have also developed online service platforms, such as the Corporate Affairs Commission (CAC) registration portal, the online passport system of the Immigration Service of Nigeria (ISN), and various e-payment platforms at federal and state levels. These innovations are in line with the digital governance dimension of e-services, as they allow citizens to access government services more effectively and transparently (sEme & Uche, 2014). In the electoral process, the Independent National Electoral Commission (INEC) has introduced digital technologies such as the biometric voter accreditation system (BVAS) and the INEC Results Viewer (IRREV) portal, which aim to increase the transparency and credibility of the elections. These instruments allow for the biometric verification of voters and real-time access to election results, thus increasing public trust in the democratic process (Olorunnisola & Martin, 2022). These initiatives reflect the growing recognition that ICT can be an important tool to promote civic engagement, accountability and transparency in governance. Despite these efforts at national level, implementation of digital governance in Nigeria remains uneven, especially at the level of the state and local government, where institutional capacity, infrastructure and public awareness vary considerably (Olorunnisola & Martin, 2022). Rivers State, one of the economically most important states in the Niger Delta region, has seen an increasing uptake of digital platforms in public administration, including e-payment systems, online provision of services and digital channels of communication between government and citizens (Ogbonna et al., 2025). However, the extent to which these digital initiatives have translated into meaningful

civic engagement and improved governance performance is still under-invested (Ogbonna et al., 2025). The National Identity Management Commission (NIMC) is the main federal agency responsible for the establishment, management and operation of the national identity database in Nigeria (Garba et al., 2024). Established by NIMC Act No. In 2007, the Commission was entrusted with the task of harmonising all existing identity databases in government institutions, ensuring a reliable and secure national ID management system and ensuring the registration of all citizens and legal residents in Nigeria (NIMC, 2023). The aim of the Commission's mandate is to assign a unique national identification number (NIN) to each eligible person, which will serve as the primary digital identifier connecting citizens to a wide range of public and private sector services (Garba et al., 2024). The NIN is now mandatory for obtaining a national identity card, SIM card registration, applying for an international passport, managing bank accounts and access to social intervention programmes such as the National Social Investment Programme (NSSIP) (Aikomo, 2025). In this respect, the activities of the NIMC are central to the wider digital governance agenda in Nigeria, as they constitute an institutional interface through which millions of Nigerians are formally identified, documented and integrated into the national administrations.

Aim and Objectives of the Study

The aim of this study is to examine digital governance and citizen engagement in national identity card management in Rivers State between 2015 and 2026. Specifically, the objectives of the study are to:

- i. Assess the key digital governance mechanism implemented by the NIMC in Rivers State between 2015 and 2026.
- ii. Examine the extent to which NIMC's digital platforms and enrolment systems have enhanced citizen engagement rates in national identity card management in Rivers State.

Research Questions

This study is established by the following research questions:

- i. What are the key digital governance mechanisms implemented by the National Identity Management Commission (NIMC) in Rivers State between 2015 and 2026?
- ii. To what extent have NIMC's digital platforms and enrolment systems enhanced citizen engagement in national identity card management in Rivers State?

Research Hypotheses

In line with the research questions and objectives of this study, the following hypotheses are formulated to guide the study:

H₀₁: Digital governance mechanisms implemented by NIMC have no significant influence on national identity card management in Rivers State.

H₀₂: NIMC's digital platforms and enrolment systems have no significant influence on citizen engagement in national identity card management in Rivers State.

Theoretical Framework

Technology Acceptance Theory

This study adopts the Technology Acceptance Theory developed by Fred Davis in 1986 as its guiding theoretical framework. Technology Acceptance Theory was formulated to explain and predict how individuals come to accept and use a technology. It builds on the Theory of Reasoned Action (TRA), which argues that human behaviour is shaped by behavioural intentions, and these intentions are influenced by a person's attitudes and underlying beliefs. In adapting TRA to the technology context, Davis sought to bridge a gap in the Information

Systems (IS) literature by incorporating a psychological perspective into the analysis of technology adoption (Ajzen & Fishbein, 1980). The Technology Acceptance Theory is structured around five interrelated constructs that collectively explain the process through which individuals come to accept and use a technology. The first construct is Perceived Usefulness, defined as the degree to which an individual believes that using a particular technological system will enhance their performance or improve their ability to accomplish specific tasks (Davis, 1989). This construct reflects the utilitarian value that users associate with a technology, and when individuals believe that a system is capable of improving efficiency, enhancing communication, or increasing overall productivity, they develop stronger intentions to adopt and use it (Venkatesh & Davis, 2000). The second construct is Perceived Ease of Use, which refers to the extent to which an individual believes that interacting with a technology will be free from cognitive and physical effort (Davis, 1989). Technologies that feature intuitive interfaces, clear navigational structures, reliable performance, and minimal learning requirements tend to generate higher levels of perceived ease of use among prospective users (Venkatesh, 2000). These two constructs serve as the foundational antecedents of the model, as they represent the primary cognitive evaluations that users make when confronted with a new technological system. The third construct is Attitude Towards Using, which refers to the overall affective evaluation that an individual forms about using a particular technology, whether that evaluation is favourable or unfavourable (Davis, Bagozzi & Warshaw, 1989). Attitude is shaped jointly by Perceived Usefulness and Perceived Ease of Use, such that individuals who believe a system is both useful and easy to use tend to develop more positive attitudes toward its adoption. Attitude therefore serves as the evaluative bridge between cognitive perceptions of a technology and the decision to use it (Davis, 1989). The fourth construct is Behavioural Intention to Use, defined as the strength of an individual's intention or willingness to use a particular technology in the future (Davis, 1989). Behavioural intention is influenced by both attitude toward using the technology and, more directly, by perceived usefulness, with research demonstrating that perceived usefulness exerts a stronger direct influence on behavioural intention than attitude alone, particularly as users accumulate experience with a system (Venkatesh & Davis, 1996). This is because individuals ultimately prioritise whether a technology will help them achieve meaningful goals over whether their general feelings about it are positive. The fifth and final construct is Actual System Use, which refers to the observable behaviour of individuals in using or not using a technology in practice (Davis, Bagozzi & Warshaw, 1989). Actual use is regarded as the ultimate dependent variable in the model, representing the behavioural outcome that all preceding constructs seek to explain and predict (Davis, 1989). The theory rests on a set of underlying assumptions that inform its analytical logic. First, it assumes that technology adoption is a voluntary, intentional act driven by rational evaluation rather than compulsion, meaning that individuals consciously weigh the expected benefits and costs of using a system before deciding to engage with it (Davis, 1989). Second, the theory assumes that perceptions, rather than objective system attributes, are the primary determinants of adoption behaviour, so that what matters most is not what a technology can actually do but what users believe it can do for them (Davis, 1989). Third, it assumes a directional causal relationship among its five constructs, whereby Perceived Ease of Use influences Perceived Usefulness, both constructs jointly shape Attitude Towards Using, attitude and perceived usefulness together determine Behavioural Intention to Use, and behavioural intention ultimately predicts Actual System Use (Davis, Bagozzi & Warshaw, 1989). Fourth, the theory assumes that the relationship between ease of use and behavioural intention is largely mediated through perceived usefulness, suggesting that ease of use matters primarily because it enhances the utility that users derive from a system rather than serving as an independent driver of adoption (Venkatesh & Davis, 2000). Fifth, and finally, the theory assumes that while

external variables such as individual characteristics, organisational context, and system design influence technology acceptance, their effects are channelled through the core constructs of the model rather than operating independently of them (Davis, 1989). The relationship between Perceived Ease of Use and technology acceptance operates through multiple pathways. First, PEOU directly influences users' attitudes toward using a technology, systems that are easier to use generate more positive attitudes (Davis, 1989). Second, PEOU indirectly affects Perceived Usefulness because easier-to-use systems enable users to accomplish more with less effort, thereby enhancing the perceived utility of the technology (Venkatesh & Davis, 1996). Third, PEOU can directly influence behavioural intentions, particularly in early stages of technology adoption when users are still forming their overall assessments of a system (Venkatesh & Davis, 2000). The technology acceptance theory posits a specific structural relationship among its core constructs. Perceived Usefulness and Perceived Ease of Use jointly influence users' attitudes toward using a technology (Davis, 1986). These attitudes, in turn, shape behavioural intentions to use the system. Finally, behavioural intentions predict actual system usage behaviour (Davis, Bagozzi, & Warshaw, 1989). However, research has revealed important nuances in these relationships. Venkatesh and Davis (1996) demonstrated that Perceived Usefulness exerts a stronger direct influence on behavioural intention than Perceived Ease of Use, particularly as users gain experience with a system. This finding suggests that while ease of use matters, users ultimately care most about whether a technology helps them achieve their goals effectively. In later refinements, Venkatesh and Davis (2000) showed that the influence of PEOU on behavioural intention is often mediated entirely through PU and attitude, meaning that ease of use primarily matters because it enhances perceived usefulness rather than serving as an independent driver of adoption (Venkatesh & Davis, 2000). These relationships become particularly relevant in digital governance contexts where citizens must weigh the benefits of political participation against the costs of learning and using new digital platforms (Venkatesh & Davis, 2000). Citizens may tolerate some complexity in digital governance tools if they believe these tools will genuinely enhance their ability to influence government decisions or access important services (Shareef, Kumar, Kumar, & Dwivedi, 2011). The Technology Acceptance Theory is relevant to this study because it provides a coherent explanatory framework for understanding why citizens in Rivers State choose to engage with or disengage from the NIMC's digital identity management systems. The theory's construct of Perceived Usefulness is directly applicable to citizens' assessments of whether enrolling on NIMC's digital platforms and obtaining the national identity card will yield concrete benefits, such as access to banking services, telecommunications, social protection programmes, and government identification. Where citizens perceive the NIN enrolment process as genuinely valuable and the digital systems as capable of delivering reliable outcomes, their willingness to participate in the identity management process is correspondingly strengthened. However, where system downtimes, prolonged card issuance delays, and institutional inefficiencies undermine confidence in the NIMC's digital infrastructure, citizens' motivation to engage is weakened regardless of policy mandates. Similarly, the construct of Perceived Ease of Use speaks to the practical barriers that many residents of Rivers State face when interacting with NIMC's platforms, particularly elderly citizens, rural and riverine community dwellers, and individuals with limited digital literacy, for whom the requirements of navigating online portals, completing digital forms, and operating biometric capture devices constitute significant obstacles to participation. The theory further holds that these two constructs jointly shape citizens' attitudes toward digital engagement, which in turn determine their behavioural intentions and actual engagement outcomes, a structural logic that allows this study to move beyond a descriptive account of NIMC's operations toward a more explanatory analysis of the perceptual and attitudinal factors that mediate the relationship between digital governance

practices and citizen engagement in national identity card management in Rivers State between 2015 and 2026.

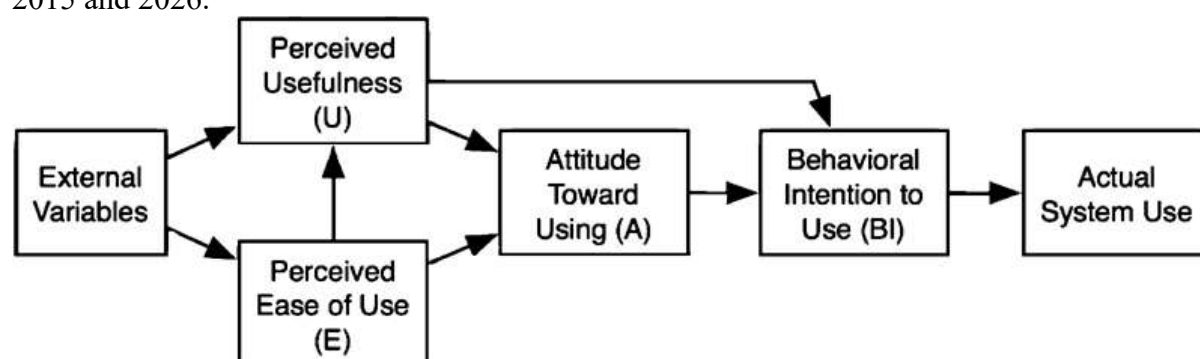


Figure 1: Technology Acceptance Theory.

Source: (Venkatesh & Davis, 1996).

Conceptual Review

Concept of Digital Governance

Digital governance represents a major shift in public administration, as digital tools and technologies are integrated to make public sector operations more efficient, transparent, and responsive (Sharmin & Chowdhury, 2025). It includes a wide variety of ICT-driven mechanisms that are designed to change government activities, service delivery models, and citizen engagement frameworks (Sharmin & Chowdhury, 2025). Fundamentally, digital governance rethinks the state-citizen relationship by eschewing bureaucratic rigidity in favour of more dynamic, approachable, and participatory public administration models. Sharmin and Chowdhury (2025) stated that this shift challenges conventional ideas of governmental authority, institutional procedures, and civic engagement. It is not just technological but also fundamentally political and administrative (Mota & Klein, 2025). The term "digital governance" describes how government organizations use information and communication technologies (ICTs) to improve the provision of public services, increase administrative effectiveness, and promote transparency and citizen engagement in governance (World Bank, 2022). It signifies a paradigm change away from conventional bureaucratic models and toward automated, data-driven, and participatory forms of government (World Bank, 2022). Public administration, as the institutional backbone of governmental operations, has undergone substantial transformation through the integration of advanced digital technologies, including artificial intelligence (AI), blockchain, big data analytics, and the Internet of Things (IoT) (OECD, 2021). According to Janowski (2015), It encompasses the strategic use of digital technologies and data to enhance government operations in every facet. It involves more than just digitizing existing processes; it represents a transformative shift in how governance is conceptualized and executed. Margetts & Dunleavy, (2013) noted that this transformation aims to make public administration and citizen engagement to be more transparent, efficient, and responsive to the needs of citizens. Digital governance refers to the application of digital technologies in the design, implementation, and oversight of government policies and public services. Maha (2016) points out that it involves automating administrative procedures and also include transforming governmental institutions into more responsive, adaptable, and citizen-centric systems. In this regard, digital governance involves the strategic use of information and communication technologies (ICTs) to enhance service delivery, facilitate citizen engagement, and improve evidence-based decision-making processes (Margetts, 2019). Conceptually, digital governance is an umbrella construct that incorporates both e-governance and e-engagement. While e-governance primarily focuses on the electronic delivery of public services, e-engagement

emphasises the active involvement of citizens in policy formulation and governance processes (United Nations, 2022). This dual orientation reflects an evolving governance paradigm that prioritises not only administrative efficiency but also democratic inclusiveness. Furthermore, digital governance is closely aligned with the principles of New Public Management (NPM), particularly its emphasis on efficiency, accountability, and responsiveness in public sector performance (Dunleavy, 2006). In practice, however, contemporary digital governance also signals a progression beyond NPM towards more integrated, data-driven, and participatory governance models, thereby reinforcing its role as a transformative framework in modern public administration.

Concept of Citizen Engagement

Citizen engagement is fundamentally connected to the principles of democratic governance and sustainable development, representing one of the most critical pillars upon which legitimate, responsive, and effective governance rests (Remigius et al., 2025). It serves as a crucial mechanism that empowers individuals, especially marginalized and vulnerable groups, to influence public decision-making and contribute to shaping their communities in ways that reflect their lived experiences, needs, and aspirations (Remigius et al., 2025). Citizen engagement refers to the engagement of citizens in the public decision-making process. In various interpretations, citizens can be either individuals or organised communities, and engagement can mean either observation or power (Wright, 2015). Oliveira and Ckagnazaroff (2022) define citizen engagement as the process through which individuals engage, either voluntarily or through mandated obligations, in decision-making processes that shape outcomes affecting their communities. Such engagement may occur on an individual basis or through collective action, and it is not confined to formal institutional arenas (Oliveira and Ckagnazaroff, 2022). Rather, engagement may also emerge within informal or non-institutional spaces, often organized by civil society groups or other community-based actors. Similarly, Fitzgerald et al. (2016) conceptualize citizen engagement as an umbrella construct that captures the diverse mechanisms through which citizens' concerns, needs, interests, and value orientations are incorporated into public decision-making and administrative actions. Their perspective emphasizes the breadth of participatory channels, ranging from consultation and deliberation to more structured forms of engagement embedded within governance systems (Fitzgerald et al., 2016). Devas and Grant (2003) conceptualize citizen engagement as the set of processes through which individuals exercise influence and retain a degree of control over decisions that shape their lived realities. This definition foregrounds engagement as a form of agency embedded within governance structures, where citizens are positioned not merely as recipients of policy outcomes but as active contributors to decision-making processes. Complementing this view, Coulibaly (2004) argues that the notion of good governance is fundamentally inseparable from the institutionalization of citizen engagement, which constitutes a core principle of democratic practice. The concept of engagement is traced to the Latin term *participatio* (*pars-in-actio*), which denotes involvement in a shared action or collective process of engagement (Oliveira & Ckagnazaroff, 2022). This linguistic origin reflects engagement as an active and continuous process situated within collective forms of social organization, rather than as a discrete or individualistic act. It implies that engagement operates through relational structures in which coordinated interaction produces shared outcomes and sustains public activity. From a historical standpoint, ideas surrounding citizen engagement are frequently linked to classical political philosophy, particularly Plato's *Republic*. In this text, civic involvement is examined within broader philosophical concerns relating to justice, governance, and the design of the ideal state. Although Plato's framework is grounded in a stratified social order that restricts universal political inclusion, it nonetheless

raises foundational questions about the conditions under which individuals may participate in governance and the implications of such involvement for political stability and legitimacy.

National Identity Card Management

National identity card management is the administrative process by which states establish, regulate, and maintain formal identification systems that allocate unique identifiers to citizens and legal residents, integrating them into state administrative frameworks, service delivery platforms, and national databases (Garba et al., 2024). While national identity card systems serve multiple interdependent functions as a governance instrument, the management of national identity cards is not merely a bureaucratic exercise; it is a key indicator of state capacity and the state-citizen relationship, representing the terms by which people are formally recognized, documented, and integrated into state administrative structures (Bhatia & Bhabha, 2017). Over the past century, the idea of managing national identity cards has changed significantly. From paper-based systems with manual processing, disjointed databases, and few security features to advanced biometric and digitally integrated platforms that can store, verify, and transmit identity data across numerous government and private sector systems (NIMC, 2023). This development is a reflection of more general changes in public administration, especially the increased focus on data-driven governance, administrative effectiveness, and the requirement for trustworthy methods to verify personal identity in increasingly intricate transactional settings (Garba et al. 2024). As the foundation of e-governance platforms that aim to provide public services, national identity management systems are increasingly seen in the modern era as digital infrastructure rather than merely administrative registries, according to Eme and Uche (2014). National identity card management involves a number of interconnected elements at the conceptual level. The first is enrolment, which entails entering a person's biometric and personal information, such as fingerprints, facial photos, and demographics, into a national database that is centrally maintained (NIMC, 2023). The process of formally integrating citizens into the identity management system is called enrolment, and its efficacy is largely dependent on the availability of enrolment infrastructure, the effectiveness of data capture systems, and the ability of government agencies to reach a variety of population segments, such as rural, riverine, and physically challenged communities (Adeleke, 2021). In order to authenticate identity for transactional, administrative, or security reasons, the second component is verification, which comprises cross-referencing individual identity claims against stored database records (Garba et al. (2024). Verification mechanisms are central to the utility of national identity systems, as they determine the reliability with which identity data can be used across different service contexts, including banking, telecommunications, healthcare, and electoral administration. The creation and distribution of physical or digital identity credentials to enrolled individuals constitutes the third component, known as issuance (Eme and Uche, 2014). The General Multi-Purpose Card (GMPC), a smart card with biometric data embedded and connected to the holder's National Identification Number (NIN), is the primary credential for gaining access to a variety of public and private sector services in Nigeria (NIMC, 2023). Database management, the fourth component, entails maintaining, updating, and safeguarding the national identity database to guarantee that records are accurate, up to date, and shielded from manipulation or unauthorized access (Garba et al. 2024). Strong technology infrastructure, institutional capacity for data governance, and well-defined legal and regulatory frameworks controlling data privacy and acceptable uses of identity information are all necessary for effective database management (Adeleke, 2021).

Methodology

The study adopted a convergent parallel mixed-methods research design to examine digital governance and citizen engagement in national identity card management in Rivers State, Nigeria, from 2015 to 2026. The study area was Rivers State, while the population comprised 3,672,851 registered NIN holders and NIMC officials involved in digital identity management. A sample of 400 registered NIN holders was determined using Taro Yamane's formula at a 5% margin of error. Multi-stage sampling was used for the quantitative component, involving purposive selection of representative local government areas and systematic random sampling of respondents, while ten NIMC officials were purposively selected as key informants. Primary data were collected through structured questionnaires and semi-structured interviews, while secondary data were obtained from scholarly publications, official NIMC reports, policy documents, and institutional publications. The questionnaire was structured into five sections and measured substantive items using a four-point Likert scale. Face and content validity were established through expert review, while reliability was assessed through a pilot study and Cronbach's Alpha. Quantitative data were analysed with SPSS using frequencies, percentages, means, standard deviations, and simple linear regression at 0.05 significance. Qualitative data were analysed thematically using Braun and Clarke's framework to ensure analytical rigour.

Presentation of Data

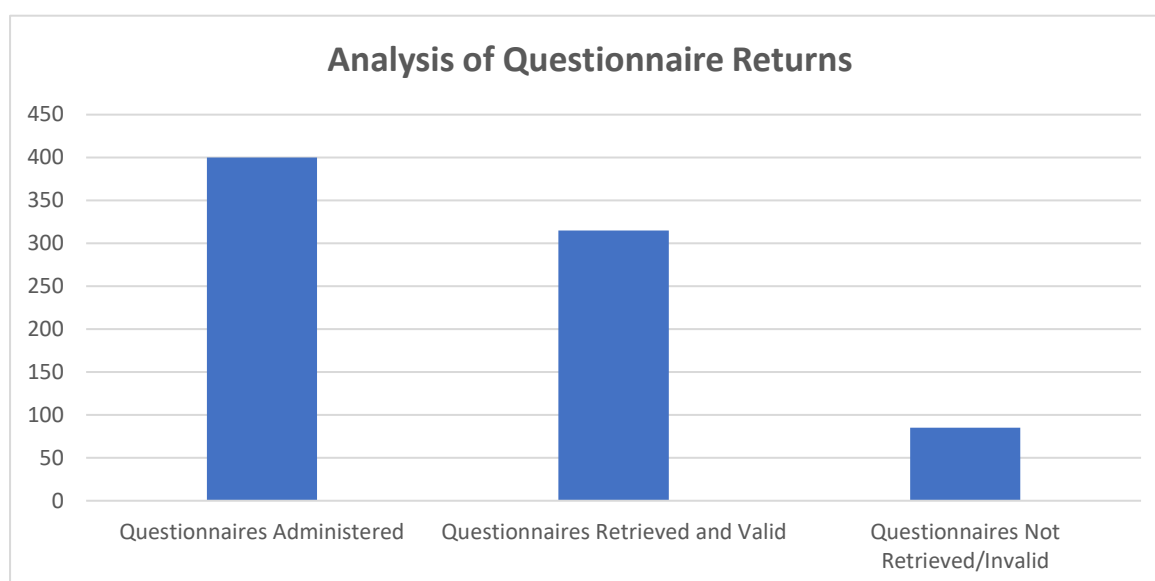
Analysis of Questionnaire Returns

Questionnaire Status	Frequency	Percentage (%)
Questionnaires Administered	400	100.0
Questionnaires Retrieved and Valid	315	78.8
Questionnaires Not Retrieved/Invalid	85	21.2
Total	400	100.0

Source: *Field Survey, 2026.*

A total of 400 copies of the questionnaire were administered to registered National Identification Number (NIN) holders selected for the study. Out of this number, 315 copies were successfully completed and returned, while 85 copies were either not returned or were discarded due to incomplete responses. This represents a response rate of 78.8 percent and a non-response rate of 21.2 percent. The response rate of 78.8 percent is considered adequate for statistical analysis and provides a reliable basis for addressing the research objectives and testing the hypotheses of the study. Consequently, the analysis presented in this chapter is based on the 315 valid questionnaires retrieved from the respondents.

Fig 4.1: Analysis of Questionnaire Returns



Analysis of Research Questions

Research Objective 1: Assess the nature and implementation of digital governance practices by the National Identity Management Commission (NIMC) in Rivers State between 2015 and 2026.

Research Question 1: What is the nature and implementation of digital governance practices by the National Identity Management Commission (NIMC) in Rivers State between 2015 and 2026?

Table 4.3: Nature and Implementation of Digital Governance Practices by NIMC in Rivers State

Variables	SD	D	A	SA	ΣX	ΣFX	Mean	Std. Dev.
NIMC has implemented an online pre-enrolment platform for national identity card registration in Rivers State.	56	66	101	92	315	859	2.73	0.68
NIMC utilizes biometric data capture systems (fingerprints, facial recognition) for identity verification in Rivers State.	89	132	56	38	315	673	2.14	0.53
NIMC has established a centralized National Identity Database for managing citizens' data in Rivers State.	31	22	140	122	315	983	3.12	0.78
NIMC provides SMS/USSD-based services for identity registration status updates and notifications in Rivers State.	138	156	12	9	315	522	1.66	0.41
NIMC has deployed mobile enrolment centres/units to reach underserved communities in Rivers State.	98	124	56	37	315	662	2.10	0.53
NIMC's digital governance mechanisms are regularly updated to reflect current technological standards.	66	81	101	67	315	799	2.54	0.63

NIMC integrates its database with other government agencies (e.g., banks, INEC, telecom operators) for identity verification.	51	79	112	73	315	837	2.66	0.66
NIMC has adopted digital identity verification technologies (e.g., NIN-SIM linkage, e-ID) to strengthen identity management in Rivers State.	34	71	133	77	315	883	2.80	0.70

Source: *Field Survey, 2026.*

Table presents respondents' assessment of the nature and implementation of digital governance practices by the National Identity Management Commission (NIMC) in Rivers State. The findings reveal varying levels of agreement regarding the effectiveness, accessibility, and deployment of NIMC's digital systems.

The statement that NIMC has established a centralized National Identity Database for managing citizens' data recorded the highest mean score of 3.12, indicating that respondents generally agreed that a functional, centralized database underpins NIMC's identity management system. This suggests that database centralization has become the most firmly established component of NIMC's digital governance architecture in Rivers State, providing a foundation on which other digital services depend. The statement that NIMC has adopted digital identity verification technologies (such as NIN-SIM linkage and e-ID) to strengthen identity management followed with a mean score of 2.80, reflecting moderate agreement that these verification tools have been introduced and are in active use, even if their full potential is yet to be realised. The finding that NIMC has implemented an online pre-enrolment platform for national identity card registration recorded a mean score of 2.73, suggesting moderate agreement. This implies that while a pre-enrolment platform exists and is used, respondents do not perceive it as fully reliable or seamless. Closely related, the statement that NIMC integrates its database with other government agencies (such as banks, INEC, and telecom operators) for identity verification purposes recorded a mean score of 2.66, indicating a moderate perception of inter-agency interoperability. This shows that some institutional integration exists, but respondents still see room for improvement in how consistently NIMC's data is shared and verified across platforms.

The statement that NIMC's digital governance mechanisms are regularly updated to reflect current technological standards recorded a mean score of 2.54, reflecting a relatively modest level of agreement. This suggests that respondents have only partial confidence in the pace and consistency with which NIMC upgrades its digital infrastructure. On the other hand, respondents expressed disagreement regarding the effectiveness of biometric data capture systems (fingerprints and facial recognition) for identity verification, which recorded a mean score of 2.14. This indicates that many citizens perceive challenges with the reliability or consistency of biometric verification during enrolment.

Similarly, the statement that NIMC has deployed mobile enrolment centres/units to reach underserved communities in Rivers State recorded a mean score of 2.10, showing that respondents have limited confidence in the visibility and reach of mobile enrolment initiatives, particularly in remote and riverine areas. The lowest-rated item was the provision of SMS/USSD-based services for identity registration status updates and notifications, which recorded a mean score of 1.66. This indicates strong disagreement among respondents and suggests that this channel of digital communication has been largely ineffective or inaccessible to citizens in Rivers State.

Further investigation was conducted through interviews with selected NIMC officials who were purposively selected based on their involvement in digital identity management, enrolment operations, ICT administration, and citizen service delivery. A total of ten officials participated in the interview. Their identities were kept anonymous to ensure confidentiality.

When asked: "What is the nature and implementation of digital governance practices by NIMC in Rivers State between 2015 and 2026?" An NIMC ICT officer revealed:

"The backbone of everything we do now is the central database. Every enrolment, every update, every verification request from other agencies, it all runs through that system. If you ask me what has actually changed since NIMC went digital, I'd say it's that — we finally have one place where a person's record lives, instead of scattered paper files. We've also rolled out the NIN-SIM linkage and some e-ID verification tools, and agencies like the banks now query our database directly for KYC purposes. That part works reasonably well. Where we still struggle is with keeping everything current — software updates on the core platform happen maybe once or twice a year, and a lot of that is decided centrally in Abuja, not here. So day-to-day, my job is more about troubleshooting than upgrading." (*Face-to-face Interview, Anonymous NIMC ICT Officer, 15th June, 2026*).

Another NIMC enrolment officer stated:

"The pre-enrolment portal, citizens complain about it a lot. They try to book a slot online, and either the site is slow or the biometric appointment doesn't sync properly with what we have at the centre, especially for people using their phones instead of a computer. So many of them end up walking in without an appointment, which then causes the queue problems you probably already know about. The fingerprint and facial recognition machines themselves work, but not always consistently, sometimes we have to re-capture two or three times before the system accepts it, and that slows everybody down. What frustrates citizens most, though, is that we never really got the SMS alert system working properly. People are supposed to get a text when their card is ready, but half the time it either doesn't come or comes weeks late, so they just keep showing up to ask." (*Face-to-face Interview, Anonymous NIMC Enrolment Officer, 15th June, 2026*).

A senior NIMC official further explained:

"We used to have mobile units. I remember around 2018, 2019, we had vans that went out to the riverine areas, parts of Andoni, places like that. But since around 2021, that has practically stopped. Fuel allocation, logistics funding, it's just not coming the way it used to. So a lot of those communities have been left behind, if I'm honest with you. On the integration side, we've made real progress, our data now talks to INEC and some of the telcos for verification, which citizens don't always see but which matters for things like SIM registration. The bigger gap is reach: the database is strong, the verification tools are improving, but if a mobile unit can't get to your community and the SMS notification never reaches your phone, all that backend progress doesn't mean much to you as a citizen". (*Face-to-face Interview, Anonymous NIMC Official, 15th June, 2026*).

The interview findings complement the questionnaire results by showing that NIMC's digital governance is strongest at the institutional and infrastructural core, the centralized database, digital verification technologies, and inter-agency integration, while citizen-facing components such as mobile outreach, biometric consistency, and SMS/USSD notifications remain the weakest links. The evidence suggests that while digital transformation has strengthened the backend of identity management, achieving inclusive digital governance in Rivers State

requires closing the gap between a well-established database and the last-mile services, outreach, communication, and consistent biometric capture, that determine how citizens actually experience that system.

Research Objective 2: Examine the extent to which NIMC's digital platforms and enrolment systems have enhanced citizen engagement rates in national identity card management in Rivers State.

Research Question 2: To what extent have NIMC's digital platforms and enrolment systems enhanced citizen engagement in national identity card management in Rivers State?

Effect of NIMC's digital platforms and enrolment systems enhanced citizen engagement rate in national identity card management in Rivers State.

Variables	SD	D	A	SA	ΣX	ΣFX	Mean	Std. Dev.
NIMC's digital platforms have made it easier for me to enrol for my NIN	35	52	161	67	315	890	2.83	0.71
I find NIMC's online systems useful for accessing identity management services	18	26	130	141	315	1024	3.25	0.81
NIMC's digital enrolment systems have reduced the time required to obtain identity cards	101	122	56	36	315	657	2.09	0.52
The availability of digital platforms has encouraged more citizens to participate in identity registration	51	33	122	109	315	919	2.92	0.73
I am able to track the status of my identity card through NIMC's digital channels	5	19	175	116	315	1032	3.28	0.82
NIMC's digital systems have reduced the need for multiple physical visits to enrolment centres	78	135	73	29	315	683	2.17	0.54
The introduction of digital identity management has improved my overall experience with NIMC services	44	71	134	66	315	852	2.70	0.68
NIMC's digital platforms have increased citizen trust in the identity management process	92	61	75	87	315	787	2.50	0.62

Source: Field Survey, 2026

Table 4.4 presents respondents' assessment of the extent to which NIMC's digital governance practices have enhanced citizen engagement in national identity card management in Rivers State. The findings reveal that digital governance initiatives have contributed positively to certain aspects of citizen engagement, particularly in accessing identity services, tracking applications, and interacting with NIMC platforms. However, some limitations remain in relation to processing efficiency, reduction of physical visits, and public trust in the identity management process.

The statement "I am able to track the status of my identity card through NIMC's digital channels" recorded the highest mean score of 3.28, indicating that respondents generally agreed that digital channels have improved their ability to monitor the progress of their identity card applications. This suggests that digital tracking mechanisms have enhanced transparency by allowing citizens to obtain information about their applications without relying entirely on physical inquiries at NIMC offices.

Similarly, the statement "I find NIMC's online systems useful for accessing identity management services" obtained a mean score of 3.25, representing a high level of agreement

among respondents. This finding indicates that citizens recognise the usefulness of NIMC's digital platforms in facilitating access to identity management services. The result suggests that the introduction of online systems has provided an alternative means of interacting with NIMC and has improved the convenience of service delivery for some citizens.

The statement "The availability of digital platforms has encouraged more citizens to participate in identity registration" recorded a mean score of 2.92, indicating moderate agreement. This implies that respondents perceive digital platforms as contributing to increased citizen involvement in the NIN registration process. By reducing some administrative barriers and providing additional channels for interaction, digital governance has encouraged greater engagement in identity registration activities.

Furthermore, the statement "NIMC's digital platforms have made it easier for me to enrol for my NIN" recorded a mean score of 2.83, showing that respondents generally agreed that digital platforms have improved enrolment accessibility. However, the score suggests that the benefits of digital enrolment are not fully experienced by all citizens, possibly due to differences in digital literacy, internet accessibility, and technical challenges.

The statement "The introduction of digital identity management has improved my overall experience with NIMC services" recorded a mean score of 2.70, indicating a moderate perception of improvement. This suggests that while digital transformation has enhanced certain aspects of service delivery, citizens continue to experience challenges that affect their overall satisfaction with NIMC services.

Conversely, respondents expressed limited agreement regarding the effectiveness of digital systems in reducing physical visits to enrolment centres. The statement "NIMC's digital systems have reduced the need for multiple physical visits to enrolment centres" recorded a mean score of 2.17, while "NIMC's digital enrolment systems have reduced the time required to obtain identity cards" recorded a mean score of 2.09. These findings indicate that despite the availability of digital platforms, many citizens still depend on physical registration centres and continue to experience delays in obtaining identity services. This may be associated with the requirement for biometric capture, technical constraints, and operational challenges within the identity management system.

The statement "NIMC's digital platforms have increased citizen trust in the identity management process" recorded a mean score of 2.50, indicating a relatively low level of agreement. This suggests that although digital governance has improved some aspects of engagement, citizens' confidence in the identity management process remains moderate. Issues relating to service reliability, delays, and accessibility may influence public trust in digital identity initiatives.

Further investigation was conducted through interviews with selected NIMC officials in Rivers State to obtain deeper insights into the extent to which digital governance practices have enhanced citizen engagement in national identity card management. The participants were purposively selected based on their involvement in enrolment operations, ICT management, customer relations, and digital service delivery. The identities of the participants were kept anonymous to maintain confidentiality. When asked: "To what extent have NIMC's digital governance practices enhanced citizen engagement in national identity card management in Rivers State?" An NIMC enrolment officer revealed:

"Digital governance has improved the way citizens interact with NIMC services because people now have more awareness of the registration process and can access information through digital platforms. The introduction of electronic systems has reduced some difficulties associated with manual procedures, especially in capturing and verifying citizens' information. However, engagement has not reached the expected level because many people still need

to visit enrolment centres physically due to biometric requirements. Some citizens also struggle with internet access and understanding how to use digital platforms effectively.” (*Face-to-face Interview, Anonymous NIMC Enrolment Officer, 15th June, 2026*).

Another ICT officer explained:

“The digital platforms have helped to increase citizen engagement with identity management services. Citizens can now receive information, verify details, and in some cases monitor the progress of their applications through electronic channels. This has improved transparency because people no longer depend entirely on physical visits to get updates. Nevertheless, the effectiveness of these platforms depends on the availability of reliable internet services, functional equipment, and continuous system maintenance.” (*Face-to-face Interview, Anonymous NIMC ICT Officer, 15th June, 2026*).

A customer service officer stated:

“Many citizens appreciate the convenience provided by digital identity services, especially when they are able to access information without spending long periods at the enrolment centres. The digital system has made communication between NIMC and citizens easier. However, there are still complaints about delays in card issuance and situations where citizens have to return multiple times before completing their processes. This affects their perception of the effectiveness of the digital system.” (*Face-to-face Interview, Anonymous NIMC Customer Service Officer, 15th June, 2026*).

A senior NIMC official further noted:

“I’ll say the platforms have encouraged more people to come forward, yes. Before, people avoided the whole process because it seemed stressful and bureaucratic. Now, because they can enrol relatively quickly and track their status, more people are willing to participate. Trust, though, is still something we’re building. Some citizens have been burnt before by long delays, so it takes time to convince them that the digital system will work for them. The major achievement of digital governance in NIMC is that it has expanded the possibilities for citizen engagement by making identity management more accessible and transparent. The use of biometric technology and electronic databases has improved the credibility of the identity management system. However, digital engagement is affected by challenges such as limited digital literacy, inadequate infrastructure, and the fact that some communities, particularly riverine areas, still have difficulties accessing enrolment services.” (*Face-to-face Interview, Anonymous Senior NIMC Official, 15th June, 2026*).

The interview responses support the questionnaire findings by indicating that NIMC’s digital governance practices have enhanced citizen engagement through improved access to information, electronic interaction, and greater transparency in identity management processes. However, the interviews also reveal that the impact of digital governance remains limited by infrastructural challenges, continued dependence on physical biometric enrolment, and unequal access to digital resources among citizens in Rivers State.

Test of Hypothesis One

H₀₁: Digital governance practices implemented by the National Identity Management Commission have no significant influence on citizen engagement in national identity card management in Rivers State.

Table 4.7: Simple Linear Regression Analysis of Digital Governance Practices and Citizen Engagement

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.721 ^a	.520	.518	.462

^a Predictors: (Constant), Digital Governance Practices

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	72.431	1	72.431	338.940	.000 ^b
Residual	66.908	313	.214		
Total	139.339	314			

^a Dependent Variable: Citizen Engagement

^b Predictors: (Constant), Digital Governance Practices

Coefficients^a

Model	B	Std. Error	Beta	t	Sig.
(Constant)	.982	.143		6.867	.000
Digital Governance Practices	.684	.037	.721	18.410	.000

^a Dependent Variable: Citizen Engagement

Table 4.7 shows that digital governance practices implemented by NIMC have a significant positive influence on citizen engagement in national identity card management in Rivers State. The Model Summary reveals a strong positive relationship between digital governance practices and citizen engagement ($R = 0.721$). The R^2 value of 0.520 indicates that digital governance practices explain 52.0% of the variation in citizen engagement, while the remaining 48.0% is attributable to other factors not included in the model.

The ANOVA result confirms that the regression model is statistically significant ($F = 338.940$, $p = 0.000$). Since the significance value is less than the 0.05 level of significance, the model provides sufficient evidence of a statistically significant relationship between digital governance practices and citizen engagement.

The Coefficients table further indicates a positive and significant effect of digital governance practices on citizen engagement ($B = 0.684$, $Beta = 0.721$, $t = 18.410$, $p = 0.000$). Based on these findings, the null hypothesis (H_{01}) is rejected. The study therefore concludes that digital governance practices implemented by the National Identity Management Commission significantly influence citizen engagement in national identity card management in Rivers State.

Test of Hypothesis Two

H₀₂: NIMC's digital platforms and enrolment systems have no significant influence on citizen engagement in national identity card management in Rivers State.

Table 4.8: Simple Linear Regression Analysis of Digital Platforms and Enrolment Systems and Citizen Engagement

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.756 ^a	.571	.570	.438

^a Predictors: (Constant), Digital Platforms and Enrolment Systems

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	79.541	1	79.541	416.760	.000 ^b
Residual	59.798	313	.191		
Total	139.339	314			

^a Dependent Variable: Citizen Engagement

^b Predictor: Digital Platforms and Enrolment Systems

Coefficients^a

Model	B	Std. Error	Beta	t	Sig.
(Constant)	.814	.132		6.167	.000
Digital Platforms and Enrolment Systems	.731	.036	.756	20.414	.000

^a Dependent Variable: Citizen Engagement

Table 4.8 shows that NIMC's digital platforms and enrolment systems have a significant positive influence on citizen engagement in national identity card management in Rivers State. The Model Summary indicates a strong positive relationship ($R = 0.756$), while the R^2 value of 0.571 indicates that digital platforms and enrolment systems explain 57.1% of the variation in citizen engagement.

The ANOVA result shows that the regression model is statistically significant ($F = 416.760$, $p = 0.000$). The Coefficients table further indicates that digital platforms and enrolment systems significantly and positively influence citizen engagement ($B = 0.731$, $Beta = 0.756$, $t = 20.414$, $p = 0.000$).

Since the p-value of 0.000 is less than the 0.05 significance level, the null hypothesis (H_{02}) is rejected. The study therefore concludes that NIMC's digital platforms and enrolment systems have a statistically significant positive influence on citizen engagement in national identity card management in Rivers State.

Discussion of Findings

Digital Governance Practices and the Enhancement of Citizen Engagement

The findings from the first research objective reveal that NIMC's digital governance practices contributed positively to citizen engagement, although implementation was uneven across the different components. Table 4.3 showed mean scores ranging from 1.66 to 3.12. Respondents rated biometric capture technology (Mean = 3.12) and integration with other government service platforms (Mean = 2.80) relatively positively, while online registration accessibility (Mean = 2.14), system maintenance (Mean = 2.10), and mobile registration outreach (Mean = 1.66) received lower ratings. This indicates that although important digital mechanisms are in place, weaknesses in accessibility, reliability, and outreach continue to constrain their effectiveness. The hypothesis test for H_{01} produced an R^2 of .520 and a regression coefficient of $B = .684$ ($F = 338.940$, $p = .000$). The null hypothesis was therefore rejected, confirming that digital governance practices significantly influence citizen engagement in national identity card management in Rivers State. The result indicates that 52.0% of the variation in citizen engagement was explained by digital governance practices. However, the descriptive findings suggest that this influence is constrained by uneven implementation, particularly in relation to mobile outreach and system reliability.

From the perspective of Technology Acceptance Theory, the finding reflects the importance of perceived usefulness and perceived ease of use (Davis, 1986, 1989). The relatively high rating for biometric technology suggests that citizens recognise its usefulness, while the low ratings for portal accessibility and mobile outreach indicate limitations in ease of access. Venkatesh and Davis (2000) similarly argue that perceived usefulness and ease of use influence users' acceptance of technological systems.

The finding is consistent with Garba, Orugun, and Garba (2024), who found that technological innovation, including biometric verification and mobile registration, improved NIMC's operational performance and citizen satisfaction. However, the present finding differs regarding mobile registration, which received the lowest rating in Rivers State. It also supports Adeleke (2021) and Sukare and Abdullahi (2025), who identified infrastructural and implementation challenges as constraints on digital identity governance in Nigeria.

Digital Platforms, Enrolment Systems, and Citizen Engagement

The findings from the second objective indicate that NIMC's digital platforms and enrolment systems made a strong contribution to citizen engagement. Table 4.4 recorded mean scores ranging from 2.09 to 3.28, with respondents particularly agreeing that the platforms enabled them to track identity card applications (Mean = 3.28) and were useful for accessing identity management services (Mean = 3.25). However, respondents reported weaker effects on processing time (Mean = 2.09) and the reduction of physical visits (Mean = 2.17).

The hypothesis test for H_{02} produced an R^2 of .571 and $B = .731$ ($F = 416.760$, $p = .000$). The null hypothesis was rejected, confirming that NIMC's digital platforms and enrolment systems significantly influence citizen engagement. The result shows that 57.1% of the variation in citizen engagement was explained by these platforms, making this relationship stronger than that observed for digital governance practices generally. Nevertheless, the descriptive results indicate that their strongest contribution lies in information access and application tracking rather than in reducing the practical demands of the enrolment process.

Within Technology Acceptance Theory, the high ratings for platform usefulness and application tracking indicate strong perceived usefulness, while the lower ratings for processing speed and reduced physical visits point to limitations in ease of use (Davis, 1989). Venkatesh and Davis (2000) maintain that perceived usefulness can strongly influence users' willingness to adopt technological systems even where ease-of-use challenges remain.

The finding agrees with Munir, Sadiq, Abbas, and Rasul (2024), who found that e-governance platforms can expand opportunities for citizen engagement. It also corresponds with Shin et al. (2024), who observed that digital engagement tools may improve interaction with government without necessarily producing equivalent gains in administrative efficiency. The finding differs somewhat from Rhamadhani and Edeh (2024), whose study emphasised bureaucratic inertia as a constraint on digital engagement, suggesting that NIMC's platforms have achieved a relatively meaningful level of citizen-facing functionality.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are made:

1. **Investment in digital infrastructure:** NIMC, in collaboration with relevant government agencies, should improve internet connectivity and power supply at enrolment centres across Rivers State to reduce system downtime and improve service reliability.

Expansion of mobile enrolment outreach: NIMC should restore and expand mobile enrolment services in riverine and other hard-to-reach communities to improve equitable access to national identity services.

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