

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) ADOPTION ON ADMINISTRATIVE PRODUCTIVITY IN NNEWI NORTH LOCAL GOVERNMENT AREA, ANAMBRA STATE, NIGERIA

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Abstract: This study examined the impact of Information and Communication Technology (ICT) adoption on administrative productivity in Nnewi North Local Government Area (2020–2024). A survey research design will be adopted. The sample size, calculated using Taro Yamane's formula, will consist of 400 participants selected through an accidental sampling technique. Instruments for data collection will include a structured questionnaire and a key informant interview guide. Data collected through the questionnaire was analyzed using the Statistical Package for Social Sciences (SPSS), employing both descriptive and inferential statistical tools. Interview data was analyzed using textual analysis and served to complement the questionnaire results. The study found that ICT adoption in Nnewi North Local Government Area has improved communication, transparency, and citizen engagement through digital platforms such as social media and the official website. However, the automation of revenue collection has had limited impact due to low technological adoption, poor awareness, and residents' reluctance to embrace digital payment systems. The study recommended that Nnewi North Local Government Council should enhance communication and service delivery by actively maintaining social media, managing emails efficiently, and providing timely responses to residents' inquiries. Additionally, the council should educate residents on using online payment platforms and continuously support and monitor automated revenue systems to improve compliance and increase internal revenue generation.

Key Words: Information and Communication Technology (ICT), administrative productivity, E-administration, digital transformation, ICT utilization

INTRODUCTION

The accelerated growth of information and communication technologies (ICTs) in the 21st century has reshaped administrative processes across the world, providing governments with innovative tools for enhanced service delivery. ICT encompasses a broad spectrum of technologies used for data processing, storage, transmission, and dissemination, extending well beyond the traditional scope of information technology (Akintoye, 2021; Anikeze, Abonyi, & Okafor, 2023). In public administration, the integration of computers, telecommunications, and digital systems has significantly improved organisational efficiency, particularly in areas where effective management of information determines administrative performance (Teryima & Sunday, 2025). These developments have positioned ICT as a catalyst for innovation, transparency, and improved service outcomes at all levels of governance, especially within local

government systems where administrative interactions with citizens are most direct.

Local governments play a central role in grassroots development, functioning as the administrative level closest to the people and responsible for providing essential civic amenities (Ugbe & Edet, 2025). In Nigeria, the 1976 Local Government Reform and subsequent constitutional provisions established local councils as autonomous entities mandated to promote local development through the provision of primary health services, basic education, community markets, and rural infrastructure (FGN, 1976; Agbodike, Igbokwe-Ibeto, & Nkah, 2014). The effectiveness of this tier of government increasingly depends on its ability to adopt ICT solutions that enhance administrative productivity. With the growing demands for accountability, inclusiveness, and timely public service delivery, ICT adoption has become indispensable in strengthening local governance functions. One of the most significant contributions of ICT to local governance lies in

its transformation of communication processes. Digital communication platforms, including email, social media, and SMS, have improved how governments disseminate information and engage with citizens in real time, fostering transparency and responsiveness (Albadri, 2023). The COVID-19 pandemic further underscored the necessity of digital communication as governments relied on online channels to maintain interaction with communities during restrictions (Tejedo-Romero, Moreno-Enguix, & Royo, 2022). By enabling cost-effective, interactive, and immediate communication, ICT has broadened opportunities for democratic participation and improved responsiveness to citizens' requests (Al-Abdallah, Hamdan, & Dar-Odeh, 2021; Ologunbe & Taiwo, 2025). For Nnewi North Local Government Area, these digital tools have the potential to significantly enhance the efficiency of administrative response to public service demands.

Beyond communication, ICT adoption is equally vital in strengthening revenue administration, a long-standing challenge for Nigerian local governments. Revenue remains the financial backbone of local governance, yet manual revenue systems have frequently been constrained by leakages, errors, and corruption, compromising fiscal stability (Ogunna, 2017; Umar, Bappi, & James, 2024). Digital automation of revenue collection offers a transformative solution by improving transparency, reducing human interference, and enhancing monitoring processes. Automated systems have been shown to increase efficiency in revenue generation by minimising financial leakages and ensuring accurate documentation (Ajaero, Iheduru, & Uchegbu, 2025). For a commercially vibrant area such as Nnewi North, adopting automated revenue platforms can strengthen the council's capacity to mobilise internal funds required for infrastructural development and public service provision. Despite the notable benefits associated with ICT adoption, administrative productivity in Nnewi North Local Government Area continues to be hindered by weak digital integration, bureaucratic delays, and structural inefficiencies. Citizens often encounter slow response times to service requests due to inadequate utilisation of digital communication tools, while revenue generation remains suboptimal due to continued reliance on manual systems. These gaps highlight a critical mismatch between the potential of ICT to improve governance and the realities of administrative practice at the local level (ICLEI, 2023; Jerab, 2024). Consequently, this study is necessitated by the persistent challenges of delayed service responsiveness and inefficient revenue mobilisation, making it essential to investigate how digital communication and automated revenue systems influence administrative productivity in Nnewi North Local Government Area.

RESEARCH QUESTIONS

The following questions were put forward to guide this study:

1. In what ways have digital communication tools (email, social media, and SMS) enhanced the response time to public service request in Nnewi North Local Government Area?
2. How has automation of revenue collection system impacted efficient revenue generation in Nnewi North Local Government Area?

RESEARCH HYPOTHESES

1. Use of digital communication tools such as official website, social media handles, email channels, call lines, have enhanced accessibility of government officials and speed of feedback to public service requests in Nnewi North Local Government Area.
2. Automation of revenue collection system through online payment portals and point-of-sale machines have made it easy for people and business to pay revenue to the local government in Nnewi North Local Government Area.

LITERATURE REVIEW

Information Communication Technologies (ICT)

Information and Communication Technologies (ICT) have long been recognised as central to contemporary knowledge production and social transformation. Ukwu, Manasseh, Logan, Okanya et al. (2023) describe ICT as the use of electronic devices within a technological framework for storing, manipulating, transmitting, and delivering information. Their account highlights ICT as a set of information-handling tools vital to education, governance, and economic development. This view is echoed in earlier information-science traditions, which approached ICT both as a technical system and as a socio-economic instrument for progress. Building on this foundation, Teryima and Sunday (2025) position ICT within the convergence of computing, telecommunications, and electronics, particularly in office settings. They underline the computer system as the core of ICT, responsible for converting raw data into meaningful outputs through interconnected hardware and software. While acknowledging the speed, accuracy, and reliability of these systems, they also note the inherent limitations of ICT, particularly the absence of reasoning capacity. This underscores the need for human judgement and oversight even in highly digitised environments. Their discussion also reflects the broad reach of ICT, extending from handheld devices to advanced supercomputers, illustrating its prevalence in personal, professional, and institutional life. Complementing this,

Kessington, Susan and Rocky (2018) highlight the structural interplay between software, hardware, and telecommunications, while Akintoye (2021) distinguishes ICT from IT by emphasising the communicative dimension. Anikeze, Abonyi and Okafor (2023) extend this further by stressing ICT's reliance on trained personnel, adequate infrastructure, and broader socio-economic conditions.

The implications of ICT's growth have been widely explored in empirical studies, particularly regarding labour markets, governance, and social inclusion. Falck, Heimisch-Roecker and Wiederhold (2021) show that digital literacy training enhances employability, wages, and participation in the labour market, suggesting that ICT skills operate as catalysts for economic mobility. Van Deursen and Van Dijk (2016) similarly find that workers with stronger digital skills are more productive and engaged. Beyond economic outcomes, ICT supports communication, service delivery, and public administration, with Asoya, Ewuim, Obi and Chiaha (2021) noting its role in platforms ranging from internet services to telephony and broadcast technologies. Drawing on Smithburg (2007), they observe that ICT enables learning across formal and informal settings, while in Nigeria it has evolved from a technology-focused system into a broader communication-centred model, underpinning advances in e-governance, e-commerce, and e-learning (Asoya et al., 2021; Olusanya & Olayede, 2013). Taken together, these perspectives demonstrate that ICT is both a technological infrastructure and a socio-cultural construct shaped by human capacity, institutional arrangements, and societal needs.

Productivity

Productivity has been interpreted through a range of economic and organisational lenses, yet most definitions converge on the fundamental notion of efficiently converting inputs into outputs. Kenton (2025) defines productivity as the relationship between resources such as labour, equipment, or finance and the goods or services produced, noting its direct influence on profitability and shareholder value. A similar perspective is offered by the Australia Government Productivity Commission (2025), which defines productivity in terms of how effectively labour, capital, and raw materials are transformed into outputs. The Bank of Canada (2021) likewise emphasises efficiency over time, linking improvements in productivity not only to increased economic output but also to enhanced living standards and national competitiveness. Beyond these macroeconomic interpretations, scholars highlight the organisational and strategic dimensions of productivity. Holliday (2025) argues that productivity encompasses far more than simply intensifying effort; it involves working more intelligently through technology adoption, streamlined processes, and empowered teams. This

approach connects productivity to cost reduction, competitiveness, and customer value creation, underscoring the qualitative factors that shape performance. Perry (2023) extends this further by portraying productivity as a multi-level concept operating from the individual to the national scale. Perry stresses that both the quantity and quality of output matter, particularly in knowledge-intensive settings where assessing alignment with organisational objectives is essential. A broader academic discourse reinforces productivity as both a quantitative measure and a driver of value creation across varied contexts. Works by Esekhangbe, Osueke, and Chiabuotu (2022) and Davies, Nsiegbe, and Frederick-Jumbo (2024) define productivity in ratio terms, incorporating multiple production factors including labour, capital, and technology. Ayobamidele (2024), drawing on Ali (2018), applies the concept to local government performance, highlighting the role of leadership, fiscal autonomy, and community involvement in efficient service delivery. Taken together, these contributions suggest that productivity reflects the efficiency and effectiveness with which inputs, whether financial, human, or technological, are converted into meaningful outputs. It embodies both measurable and qualitative elements and plays a critical role in organisational success, economic growth, and societal well-being.

Local Government

Local government represents a crucial tier of governance that mediates between central authorities and communities, balancing administrative functions with democratic participation at the grassroots. Adeyemi (2019) conceptualises local government through the lenses of de-concentration and devolution. In the de-concentration model, local government operates largely as an extension of central or state authorities, lacking financial autonomy, with key officials appointed politically and accountable primarily upwards rather than to the populace, and councils frequently unelected. Conversely, devolution frames local government as an autonomous tier endowed with financial, administrative, and political independence, enabling democratic accountability and grassroots participation. This distinction highlights the tension between genuine empowerment of local councils and their subordination to higher levels of government, shaping both the practice of local governance and its effectiveness in service delivery (Adeyemi, 2019). Extending this analysis, Abiola and Ogedengbe (2024) emphasise that despite their subordination, local governments are crucial for providing infrastructure and essential services, such as rural road networks, community markets, and local amenities, which are vital for economic development. Nevertheless, structural constraints, particularly weak fiscal independence, limit their efficiency, producing a paradox where councils bear significant responsibilities yet lack the autonomy

necessary to fulfil them effectively. Historically, Nigerian local government has evolved from colonial indirect rule, through post-independence reforms, to the 1976 Local Government Reform Guidelines, which institutionalised devolution by granting councils constitutional recognition, financial powers, and electoral legitimacy (Galadima, 2007; FGN, 1976). These reforms embedded the principle of subsidiarity, devolved local functions, and incorporated traditional institutions in advisory capacities, laying a framework for uniform governance across diverse states while promoting grassroots participation. The 1999 Constitution further enshrined democratic local councils, defined their structure, functions, and financial mechanisms, and allowed state legislatures to assign additional roles (Ugbe & Edet, 2025). Despite these provisions, gaps between constitutional guarantees and practical realities persist, particularly in financial autonomy, undermining service delivery, and democratic accountability. From a developmental perspective, councils act as vehicles for political education, mobilisation, and rural development through the provision of amenities, literacy promotion, and skill acquisition initiatives (Agbodike, Igbokwe-Ibeto & Nkah, 2014). The distinction between elected local governments and appointed local administrations further clarifies the dual necessity of political legitimacy and administrative capacity for effective governance (National Open University of Nigeria, 2024). Collectively, these perspectives depict local government as a decentralised mechanism for grassroots democracy and socio-economic development, dependent on both institutional frameworks and operational autonomy.

Digital Communication Tools and Timely Response to Public Service Request

Digital communication has become an essential component in enhancing the responsiveness of local governments to public service requests. Albadri (2023) highlights that digital communication marks a transformative shift in the way information is conveyed, enabling interactive, two-way engagement through social media and other online platforms. Reyna, Hanham, Meier, and Williams (2019) note that the incorporation of text, images, audio, and video enriches the user experience, making digital channels more engaging than traditional methods. Additionally, Al-Abdallah, Hamdan, and Dar-Odeh (2021) emphasise the cost-effectiveness of tools such as email and instant messaging, which reduce reliance on paper and postal systems. While these tools increase accessibility and speed, facilitating faster responses to public service requests, they also introduce challenges such as information overload, which may compromise the clarity and effectiveness of communication (Ologunebi & Taiwo, 2025). Beyond efficiency, digital communication fosters flexibility and

inclusivity in public service delivery. Ologunebi and Taiwo (2025) argue that these tools allow citizens to engage at any time and from any location, while enabling local governments to coordinate across departments through project management software, shared documents, and video conferencing. Tracking and analysing communication patterns further enhance responsiveness, allowing governments to anticipate and address community needs more effectively. However, the high volume of interactions can create bureaucratic bottlenecks when mechanisms to prioritise and filter requests are lacking, highlighting the need to balance responsiveness with operational efficiency.

Digital platforms also play a pivotal role in promoting civic engagement and political accountability. Ojo (2022) observes that social media, blogging, and citizen journalism have altered the political landscape by enabling citizens to disseminate information independently of mainstream media, thereby fostering transparency. Milakovich (2012) contends that these tools support participatory democracy by facilitating collective mobilisation, which pressures public institutions to respond more promptly. Similarly, Ologunebi and Taiwo (2025) emphasise that online scrutiny of local governments enhances accountability. Consequently, digital communication functions not only as a channel for interaction but also as a mechanism that compels authorities to deliver timely and transparent public services. The broader literature situates these developments within the context of digital transformation in public administration. Jerab (2024) highlights that the shift from paper-based bureaucracies to agile, citizen-centred operations has redefined responsiveness, making service delivery more inclusive and efficient. Granicus (2024) and Mori, Tanaka, Iwai, and Sakurai (2020) underscore how expectations for private-sector-style convenience, coupled with crises such as the COVID-19 pandemic, have accelerated the adoption of digital tools by local governments. Data-driven approaches further enhance responsiveness, enabling authorities to anticipate citizen needs (Alexandru et al., 2019; Al-Salman, Mustafina, & Shahoodh, 2020). Nevertheless, challenges persist, including infrastructural limitations, the digital divide, fragmented ICT strategies, and resistance to change (ICLEI, 2023; Parviainen et al., 2022; Angry Nerds, 2023; Zencity, 2025). Overall, the studies indicate that digital tools can significantly improve the timeliness, inclusivity, and efficiency of public service delivery, but their effectiveness depends on careful integration with broader governance reforms that prioritise equity, accountability, and sustainability.

Automation of Revenue Collection System and Internal Revenue Mobilization

Revenue generation remains central to the operations of local governments worldwide, particularly in developing countries where fiscal resources are limited. Ogunna (2017) emphasises that revenue acts as a critical lubricant for the administrative machinery of government, ensuring effective functioning. Local authorities face the dual challenge of mobilising sufficient internal funds while relying on statutory allocations from higher tiers of government. Ogunna (2017) further identifies determinants of available revenue, including the size of the local government, national government policies, and the strategic role of local authorities in community development. Given declining national revenues, scholars have increasingly advocated for strengthened internal revenue mobilisation (IRM) through automation and digital reforms. Automation is widely promoted as a mechanism to reduce leakages, inefficiency, and corruption, which have historically constrained local government finances. The adoption of digital tools has been shown to transform revenue collection by reducing administrative costs and enhancing efficiency. Olaghere and Adewuyi (2020) observe that African tax administrators have embraced technology to streamline revenue systems, enabling digital transactions and seamless exchange of billing information between taxpayers and authorities. Rossel, Santoro, and Hakizimana (2023) further argue that digital systems improve record-keeping, lower compliance costs, and increase transparency. In Nigeria, the Federal Inland Revenue Service (FIRS) introduced new e-tax services in 2017 to enhance tax mobilisation. According to Awa, Diouf, and Faith (2024), these platforms simplified payment processes, encouraged compliance, and ultimately boosted revenue. However, scholars caution that socio-economic conditions and institutional weaknesses may limit the full realisation of these benefits, despite the promise of digital adoption.

In practice, Nigeria's digital taxation reforms are embodied in six e-services - e-Registration, e-Stampduty, e-Taxpay, e-Receipt, e-Filing, and e-TCC, launched in 2017. Olaghere and Adewuyi (2022) note that these services automate previously manual processes, reducing compliance turnaround times and enhancing taxpayer monitoring. The International Centre for Tax and Development (ICTD, 2021, cited in Ajaero, Iheduru, and Uchegbu, 2025) affirms that automation simplifies the entire taxation process, promoting accountability. Scholars such as Olaoye and Atilola (2018) contend that automation improves both direct and indirect tax collection while reducing evasion through built-in checks. Similarly, Okunogbe and Santoro (2023) highlight the self-enforcing mechanism of VAT in fostering compliance. Nonetheless, critics emphasise that automation alone cannot resolve revenue challenges without strong institutional frameworks to enforce compliance and ensure effective implementation. Local

governments in Nigeria depend on both external and internal revenue sources. Emeh, Etea, and Elechi (2023) note that statutory allocations from federal and state governments remain essential, but internal sources such as taxes, rates, licences, and rents are crucial for financial autonomy. However, state interference through joint accounts has undermined fiscal independence, as governors may withhold funds or encroach on local taxation powers, weakening grassroots development. Scholars argue that enhancing internally generated revenue (IGR) through automation can address these challenges by reducing leakages and improving accountability. Monday, Olukemi, Ruth, and Olapeju (2024) further highlight the potential of Information and Communication Technology (ICT) to promote transparency, sustainability, and efficiency in local government finance. While reforms such as the Automated Revenue Collection Application (ARCA) (Abubakar, 2023) and earlier initiatives like TIN, ITAS, and SIGTAS (Adamu and Kawugana, 2025) demonstrate significant gains, their success depends on adequate infrastructure, political will, and inclusive strategies that accommodate the realities of local communities. Ultimately, automation should be pursued as a catalyst for transparent and sustainable fiscal systems rather than as an end in itself.

Empirical Literature

Olayinka-Agboola, Ismail, and Eke (2025) investigated the impact of digitization on public service delivery in Nigeria, focusing on selected federal agencies including the Public Service Institute of Nigeria, Federal Civil Service Commission, and Federal Ministry of Education. Using a survey research design, questionnaires were distributed to a sample of 381 respondents from a population of 575, yielding 369 valid responses. Data were analysed with Ordinary Least Squares (OLS) multiple linear regression and statistical significance assessed through p-values. The study revealed that digitization significantly improves service delivery by enhancing efficiency, transparency, and accountability, and highlighted ongoing progress in the adoption of digital technologies within federal agencies. While this study addressed a national scope, it aligns with local government-focused research by demonstrating how ICT adoption can improve responsiveness and service outcomes in public administration.

Anikeze, Abonyi, and Okafor (2023) explored the influence of ICT on organisational decision-making in federal parastatals in Enugu, with particular attention to mobile phone communication, email, and video/web conferencing. Adopting a descriptive survey design, data were collected from 323 employees using questionnaires and analysed with arithmetic means, standard deviation, and correlation statistics. Findings indicated significant positive relationships between ICT use and decision-making, with

high correlation coefficients for mobile phone communication ($r = 0.761$), email ($r = 0.750$), and video/web conferencing ($r = 0.890$), all significant at $p < 0.05$. This study illustrates the capacity of digital communication tools to enhance organisational efficiency and timely decision-making, providing a conceptual foundation for assessing similar impacts on public service responsiveness at the local government level in Nnewi North.

Kagendo and Kinyua (2024) examined the effect of revenue automation on financial performance in the County Government of Meru, employing an explanatory research design guided by the New Public Management theory. A sample of 163 staff was selected from a population of 276 using stratified random sampling, with data collected through self-administered questionnaires. Both descriptive and inferential statistical analyses were conducted, including regression analysis and Pearson's correlation coefficient. The study found that internal controls and automation mechanisms significantly enhanced financial performance ($p < 0.05$), confirming that ICT-driven systems can improve efficiency and accountability in revenue collection. This finding is directly relevant to local government administration, demonstrating the potential benefits of automating revenue processes to strengthen fiscal management in Nnewi North.

Emeh, Etea, and Elechi (2023) focused on automation of internal revenue collection in Ohafia Local Government Council, using the Technology Acceptance Model to assess the perceived usefulness and ease-of-use of automation processes. A descriptive survey design gathered data from 54 finance officers, supplemented by secondary sources, and analysis was conducted qualitatively and descriptively. Results indicated that automation effectively addressed challenges such as tax evasion, revenue leakages, poor internal auditing, and manual handling of tax information. Similarly, Umar, Bappi, and James (2023) investigated ICT's effect on revenue generation at the Gombe State Internal Revenue Service through a survey of 98 staff, employing the Technology Acceptance Model, mean scores, and ANOVA for data analysis. Their findings confirmed a moderate positive relationship between ICT availability and revenue collection efficiency. Both studies highlight that automation and ICT adoption can significantly enhance revenue mobilisation, efficiency, and operational transparency, offering practical insights for Nnewi North Local Government.

Oladimeji, Abdulkareem, and Adejumo (2024) examined the relationship between digital literacy and productivity among local government employees in Ilorin West, using a survey of 113 employees and PLS-SEM for data analysis. The study found that digital literacy positively influenced

productivity and that access to ICT moderated this relationship, enhancing employee performance. Complementing these findings, Nwakoby, Okoye, and Chukwurah (2021) investigated communication technology's role in administrative efficiency within the Anambra State Ministry of Information, using a structured questionnaire with 232 staff and Chi-Square analysis. They reported that ICT facilitated timely decision-making, data storage, and processing, though limited staff technical skills posed a significant challenge. Together, these studies underscore the critical role of ICT skills and digital communication tools in improving productivity and service delivery in public administration.

Finally, Ayoade (2017) studied ICT's impact on public service delivery in three local governments in Oyo State, employing a descriptive survey design with 450 staff respondents and analysis via multiple regression. Results demonstrated that ICT positively influenced service delivery by reducing costs, improving transparency, and enhancing accountability, although poor infrastructure and limited technical expertise constrained its effectiveness. Ewuim and Igbokwe-Ibeto (2016) similarly explored ICT in Amuwo-Odofin Local Government Council using a mixed survey method and found ICT improved performance, service delivery, transparency, and accountability despite challenges such as corruption and inadequate infrastructure. These findings highlight that digital tools and ICT integration are instrumental in enhancing service responsiveness, productivity, and administrative efficiency within local government contexts, providing strong empirical grounding for the Nnewi North study.

THEORETICAL FRAMEWORK

This study is anchored on the Unified Theory of Acceptance and Use of Technology (UTAUT), advanced by Venkatesh, Thong, and Xu (2016). UTAUT builds upon several foundational models, including the Theory of Reasoned Action (TRA), which links behaviour to attitudes and subjective norms; the Theory of Planned Behaviour (TPB), which incorporates perceived behavioural control; the Technology Acceptance Model (TAM), which emphasises perceived usefulness and ease of use; the Motivational Model (MM), which connects intrinsic and extrinsic motivation to technology adoption; the Combined TAM and TPB (C-TAM-TPB), which integrates behavioural control with perceived usefulness; the Model of PC Utilization (MPCU), which considers factors such as job-fit, complexity, and long-term consequences; the Innovation Diffusion Theory (IDT), which examines adoption based on innovation characteristics; and Social Cognitive Theory (SCT), highlighting self-efficacy and environmental influences. By synthesising these eight

models, UTAUT provides a comprehensive framework for understanding technology acceptance, recognising that adoption is shaped by a combination of psychological, social, and contextual factors (Venkatesh et al., 2016). Its strength lies in its ability to integrate multiple constructs, such as attitude, subjective norms, and facilitating conditions, into a model capable of predicting both intention and actual use across varied organisational and cultural settings.

At the heart of UTAUT are four key determinants: performance expectancy, effort expectancy, social influence, and facilitating conditions, which are moderated by demographic and experiential variables including gender, age, experience, and voluntariness of use (Dwivedi et al., 2019). Performance expectancy, defined as the belief that a technology will improve job performance, has consistently been shown to be the strongest predictor of intention, particularly among younger male users (Maruping et al., 2017, cited in Olayinka-Agboola, Ismail, & Eke, 2025). Effort expectancy focuses on the perceived ease of use, while social influence addresses the impact of peers, superiors, and cultural expectations on individual decisions. Facilitating conditions refer to organisational and infrastructural support that enables users to translate intention into actual use. While UTAUT provides robust explanatory power, its applicability outside organisational contexts has been questioned, and critics highlight its reliance on demographic moderators as a limitation that may oversimplify user diversity and ignore contextual factors such as trust, privacy, or cultural nuances (Dwivedi et al., 2019; Olayinka-Agboola, Ismail, & Eke, 2025). Subsequent extensions, such as UTAUT2, have sought to address these gaps by incorporating constructs like hedonic motivation and price value to better reflect consumer settings (Venkatesh, Thong, & Xu, 2016).

Applying the relevance of UTAUT to this study, performance expectancy helps explain how digital communication tools, such as email, social media, and SMS, can enhance response times to public service requests, as employees' belief in the effectiveness of these tools influences their use. Effort expectancy and facilitating conditions illuminate how the automation of the revenue collection system affects efficient revenue generation, highlighting the importance of user-friendliness and institutional support in adopting new technologies. Social influence further clarifies how peer practices and organisational expectations shape the utilisation of ICT, ensuring that adoption is not only technically feasible but also socially reinforced. In this way, UTAUT offers a theoretical basis for understanding the interplay of individual beliefs, organisational support, and social dynamics in improving administrative outcomes through ICT adoption.

RESEARCH METHOD

Research Design

This study employed a survey research design, which involves investigating a phenomenon by collecting and analysing data from a sample deemed representative of the larger population (Nworgu, 2015). This design was considered suitable as it enabled the researcher to systematically gather and examine responses from staff and residents of Nnewi North Local Government Area, reflecting broader population perspectives on the use of ICT in enhancing service delivery and revenue mobilisation.

Population, Sample, and Sampling Procedure

The study population was based on the 2022 estimated population of 221,500 for Nnewi North LGA, calculated from the 2006 census data and an assumed annual population growth rate of 2.2% (National Population Commission, 2022). A sample of 400 participants was derived using Taro Yamane's formula, selecting 100 participants from each of the four towns – Otolu, Uruagu, Umudim, and Nnewichi, through purposive sampling. Additionally, ten staff members of the local government were engaged in key informant interviews to provide supplementary insights to the questionnaire findings.

Instrument for Data Collection

Primary data collection was conducted using a structured questionnaire and an in-depth interview (IDI) guide. The questionnaire comprised two sections: demographic information and three clusters of items corresponding to the research questions, measured on a five-point Likert scale. The IDI guide was used to collect qualitative data from ten senior staff members, with interviews conducted in person, transcribed, and analysed alongside questionnaire data.

Validity and Reliability

To ensure validity, the questionnaire was reviewed by two experts in political science from Nnamdi Azikiwe University and adjusted according to their feedback, as well as that of the research supervisor. Reliability was established through a pilot test of 30 residents of Nnewi South LGA, yielding a Cronbach's Alpha of 0.78, exceeding the minimum acceptable benchmark of 0.70 (Nunnally, 1978).

Method of Data Analysis

Quantitative data were analysed using descriptive statistics, including frequencies, percentages, arithmetic mean, and standard deviation, while hypothesis testing was conducted through linear regression at a 5% significance level. Qualitative data from interviews were subjected to thematic

textual analysis to identify patterns and insights aligned with the study objectives.

ANALYSIS OF DATA

Out of a total of 400 questionnaires distributed, 364 were successfully retrieved, representing a high response rate of 91%. This indicates strong participant engagement and suggests that the data collected are likely to be reliable and representative.

Table 1

Demographic characteristic of respondents (N = 364)

Demographic Variable	Category	Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	203	55.8	55.8	55.8
	Female	161	44.2	44.2	100.0
	Total	364	100.0	100.0	
Age	20–30 years	168	46.2	46.2	46.2
	31–40 years	96	26.4	26.4	72.5
	41–50 years	68	18.7	18.7	91.2
	51 years and above	32	8.8	8.8	100.0
	Total	364	100.0	100.0	
Marital Status	Single	167	45.9	45.9	45.9
	Married	123	33.8	33.8	79.7
	Divorced	15	4.1	4.1	83.8
	Widowed	59	16.2	16.2	100.0
	Total	364	100.0	100.0	
Education Level	WASSC	100	27.5	27.5	27.5
	OND/NCE	40	11.0	11.0	38.5
	B.Sc./HND	188	51.6	51.6	90.1
	M.Sc./MA	36	9.9	9.9	100.0
	Total	364	100.0	100.0	

Note. Adapted from Field Survey (2025)

The study surveyed 364 participants, with males making up a slightly larger share of the sample (55.8%) than females (44.2%). Nearly half of the respondents were between 20 and 30 years old (46.2%), followed by those aged 31–40 (26.4%), 41–50 (18.7%), and 51 years and above (8.8%). In terms of marital status, 45.9% reported being single, 33.8% married, 4.1% divorced, and 16.2% widowed. Educationally, most respondents held a B.Sc./HND (51.6%), while others reported WASSC (27.5%), OND/NCE (11.0%), or M.Sc./MA qualifications (9.9%). Overall, the data suggest a predominantly young, mostly single, and generally fairly-educated sample.

Demographic Characteristics of Respondents

The demographic characteristics of the participants, including their gender, age, marital status, and education level, were analysed using frequency counts and percentages.

Analyses of Research Questions

This section outlines and interprets the data gathered from respondents, drawing on their answers to the questionnaire items developed to address each research question in the study.

Research Question 1: In what ways have digital communication tools (email, social media, and SMS) enhanced the response time to public service request in Nnewi North Local Government Area?

Table 2

Mean and standard deviation scores on ways digital communication tools have enhanced response time to public service request in Nnewi North Local Government Area (N:364)

S/N	Items	SA	A	N	D	SD	Mean	Std. Deviation	Remark
1	Nnewi North Local Government has a social media account (e.g., Facebook, Instagram, Twitter) people follow for various information	7	60	100	191	6	3.35	0.84	Accepted
2	There is an official website of Nnewi North Local Government that contains basic information	9	64	106	172	13	3.32	0.89	Accepted
3	Nnewi North Local Government has an email address residents can send official requests to	35	61	143	114	11	3.01	0.99	Accepted
4	Nnewi North Local Government has a phone line that residents can call for inquiries	40	148	97	56	23	2.65	1.07	Rejected
5	The leadership of Nnewi North LGA always provides immediate response to people on any information using its official social media (e.g., Facebook, Instagram, Twitter) platforms	7	60	108	177	12	3.35	0.86	Accepted
6	The leadership of Nnewi North through their official website has been able to provide residents access to information anytime of the day, which minimizes delays caused by office working hours	8	54	102	176	24	3.42	0.90	Accepted
7	The leadership of Nnewi North Local Government through their email always ensures that inquiries made by residents reach the correct department without misdirection	71	149	87	37	20	2.41	1.08	Rejected
8	Nnewi North Local Government Council phone line has provided real-time conversations between residents and officials, making it the fastest way to obtain clarifications or report urgent issues	66	157	84	31	26	2.43	1.10	Rejected
Cluster Mean/Std. Deviation							3.0	0.97	Moderately Accepted

The data in Table 2 show that respondents hold a moderately positive view of how digital communication tools support timely responses to public service requests in Nnewi North LGA. Item means range from 2.41 to 3.42, with social media platforms and the official website scoring above 3.0, while phone lines and email fall below this

threshold. Reported standard deviations span from 0.84 to 1.10, indicating moderate variation in respondents' perspectives. Taken together, the cluster mean of 3.0 and a standard deviation of 0.97 reflect an overall moderate level of agreement that these digital tools contribute to improved responsiveness.

Research Question 2: How has automation of revenue collection system impacted efficient revenue generation in Nnewi North Local Government Area?

Table 3

Mean and standard deviation scores on how automation of revenue collection system has impacted efficient revenue generation in Nnewi North Local Government Area (N:364)

S/N	ITEMS	SA	A	N	D	SD	Total	Mean	Std. Deviation	Remark
9	Nnewi North Local Government Council has made it possible for residents to pay their taxes, rates, and other service fees on their website using their smartphones and computers	76	104	119	36	29	364	2.55	1.16	Rejected
10	The local government council has a Point-of-Sale (POS) at different locations where residents can pay their taxes and rates	82	101	99	47	35	364	2.59	1.24	Rejected
11	The local government has a mobile application that enables residents to pay for different service fees	75	105	111	35	38	364	2.60	1.21	Rejected
12	Online payment of taxes and rates provided by the local government council has reduced the physical and time barriers associated with in-person payment, especially among traders	81	90	109	49	35	364	2.63	1.24	Rejected
13	The local government council's provision of Point-of-Sale (POS) services at different locations makes tax and fee payment more physically accessible to residents who may not know how to use online platforms	84	105	119	24	32	364	2.49	1.17	Rejected
14	Online payments allow the council to automatically record transactions, reducing the likelihood of revenue leakage and mismanagement	63	102	115	50	34	364	2.70	1.18	Rejected
Cluster Mean								2.59	1.20	Rejected

Table 3 shows that respondents expressed generally low agreement on the influence of automating the revenue collection system on internal revenue mobilization in Nnewi North Local Government Area. Mean scores for the individual items fall between 2.49 and 2.70, with an overall cluster mean of 2.59, suggesting that most respondents did not view automation as having a strong positive impact.

The standard deviations, which range from 1.16 to 1.24, indicate a moderate level of variability in opinions among the 364 participants. Taken together, these results are classified as "Rejected," meaning the respondents did not consider the automation initiatives to have meaningfully improved internal revenue collection.

Test of Hypotheses

This section presents and interprets the results of three hypotheses tested for this study.

Hypothesis One: Use of digital communication tools such as official website, social media handles, email channels, call lines, have enhanced accessibility of government officials and speed of feedback to public service requests in Nnewi North Local Government Area.

Table 4

Linear regression analysis indicating how the use of digital communication tools such as official website, social media handles, email channels, call lines, have enhanced accessibility of government officials and speed of feedback to public service requests in Nnewi North Local Government Area

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.180	1	.180	.050	.823 ^b
	Residual	1295.740	362	3.579		
	Total	1295.920	363			

a. Dependent Variable: Public_service_request

b. Predictors: (Constant), Digital_Comm_Tools

Table 4 reports the linear regression analysis for Hypothesis 1, assessing whether the use of digital communication tools – official websites, social media, email, and call lines, improves access to government officials and the speed of feedback in Nnewi North Local Government Area. The model produced an F-value of 0.050 with a significance level of 0.823, showing no statistically significant

relationship between these digital tools and public service request responsiveness. The regression sum of squares stood at 0.180, compared to a residual sum of squares of 1,295.740, indicating that the model accounts for only a negligible share of the variance in the outcome variable and offers no meaningful predictive value in this context.

Hypothesis Two: Automation of revenue collection system through online payment portals and point-of-sale machines have made it easy for people and business to pay revenue to the local government in Nnewi North Local Government Area.

Table 5

Linear regression analysis indicating how automation of revenue collection system through online payment portals and point-of-sale machines have made it easy for people and business to pay revenue to the local government in Nnewi North Local Government Area.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.008	1	4.008	.936	.334 ^b
	Residual	1550.739	362	4.284		
	Total	1554.747	363			

a. Dependent Variable: Easy_payment_of_revenue

b. Predictors: (Constant), Automation_of_revenue_collection

Table 5 presents the linear regression analysis for Hypothesis 2, which assessed whether automating the revenue collection system through online payment portals and point-of-sale machines improves the ease of revenue payment in Nnewi North Local Government Area. The ANOVA results indicate a regression sum of squares of 4.008 with 1 degree of freedom, a corresponding mean square of 4.008, and an F-value of 0.936, which was not statistically significant ($p = 0.334$). Based on these findings, automation of the revenue collection system does not exert a statistically significant influence on how easily residents are able to make revenue payments in Nnewi North Local Government Area.

DISCUSSION OF FINDINGS

The discussion of this study's findings is organized in line with the themes that emerged from each research question guiding the investigation.

Digital Communication Tools and Timely Response to Public Service Request in Nnewi North Local Government Area

The results for the first research question show that residents view the Nnewi North LGA's social media platforms – Facebook, Instagram, and Twitter, as important and active sources of information. Respondents noted that they are aware of these official accounts and use them as a direct channel for communication with the local government, indicating that social media plays a visible and accessible role in sharing updates and announcements. The LGA's official website was also reported to provide essential information, enabling residents to obtain relevant details at their convenience, even outside office hours. These observations were reinforced by insights from an IDI participant.

Our goal has always been to bring governance closer to the people, and platforms like Facebook, Instagram, and Twitter have made it easier to share updates, announcements, and engage directly with the public. We also ensure that our official website remains up-to-date so residents can conveniently access essential information anytime, even beyond working hours (Respondent A, Female, 38 years, September 2025).

Another IDI respondent made similar remark

The local government has invested effort into maintaining a strong digital presence because we understand the importance of accessibility and transparency. Through our social media pages and official website, we strive to keep the community informed and involved, making it easier for them to connect with us and stay

updated on local government activities (Respondent B, Male, 46 years, September 2025).

Email communication, though accessible, drew mixed reactions from residents: it was acknowledged as a formal channel for submitting official requests, yet many questioned whether messages were consistently routed to the correct departments without being misdirected. In contrast, direct phone lines were widely viewed as unreliable for obtaining prompt responses, a concern that an IDI participant also confirmed, reinforcing the perception that this mode of inquiry lacks timely effectiveness.

Email remains a formal and reliable means of communication, especially for processing official requests and documentation. However, the level of engagement from the public through it is relatively low compared to what we observe on our social media pages. This preference may be linked to the perception that email responses take longer to process (Respondent C, Male, 42 years, September 2025).

The findings show that Nnewi North LGA's use of digital communication tools has generally improved the speed of responses to public service requests, with social media and the official website emerging as the most effective channels for timely feedback and easy access to information. In contrast, email and telephone lines were found to have operational constraints that limit their responsiveness. Overall, the results affirm that the LGA's adoption of digital platforms has strengthened timely communication with the public. These findings align with earlier evidence from Nwakoby, Okoye, and Chukwurah (2021), who reported that ICT significantly enhances access to and management of information for prompt decision-making, including improved data storage and processing for administrative efficiency, as well as Ayoade's (2017) findings, which demonstrated a significant positive effect of ICT on public service delivery, cost reduction, transparency, and accountability.

Automation of Revenue Collection System and Internal Revenue Mobilization in Nnewi North Local Government Area

The study's findings regarding the second research question show that the impact of automated revenue collection mechanisms on internal revenue mobilization in Nnewi North Local Government Area has been limited. Survey data indicate that residents perceive the council's leadership as ineffective in implementing technological tools for

revenue collection, including online payment platforms accessible via smartphones and computers, mobile applications for service fee payments, and Point-of-Sale (POS) terminals at different locations. This perception contrasts with the perspectives of some in-depth interview (IDI) participants, who are staff members of the Nnewi North Local Government Council secretariat, suggesting a divergence between public opinion and the council staff's views on the adoption and effectiveness of these digital revenue collection tools.

In recent years, Nnewi North Local Government Council has made deliberate efforts to modernize its revenue collection system. One of our key initiatives has been the gradual automation of the payment process to reduce cash handling and improve transparency. We have been actively sensitizing residents and business owners across different areas of the local government on how to make payments using mobile banking platforms and point-of-sale (POS) services (Respondent D, Female, 54 years, September 2025).

Another IGI respondent shared similar view:

Our revenue collection teams now go out to major markets, motor parks, and business clusters to educate traders and artisans on the ease and safety of digital payment. We also provide guidance on how to confirm official payment accounts and get digital receipts for their transactions (Respondent E, Male, 47 years, September 2025).

The study found that residents perceive the limited automation of the revenue system by the Nnewi Local Government Council as failing to enhance the convenience or accessibility of tax and fee payments. Additionally, the findings indicate that respondents generally doubt the ability of these digital revenue collection systems to minimize revenue leakage through automatic transaction recording. Despite these concerns, some interview participants suggested potential factors contributing to the poor revenue collection performance of Nnewi North Local Government Council.

Despite the commercial vibrancy of Nnewi North Local Government Area, the growth of our internally generated revenue has been relatively slow considering what it ought to be. The council has made significant efforts to modernize our revenue collection system through the introduction of digital platforms, which were designed to make tax and levy payments faster, more transparent, and convenient for residents. However, a major challenge remains the unwillingness of some individuals and business owners to comply with

their civic responsibilities. Many still evade taxes or delay payments, even when multiple digital channels are available for their convenience. This attitude has affected the council's ability to meet its revenue targets and implement developmental projects as planned (Respondent B, Male, 46 years, September 2025).

Another IDI participant had this to say:

One of the major setbacks we have observed is the limited understanding among some residents on how to effectively use these digital tools. Many traders, artisans, and small business operators are not well-versed in navigating online payment systems, which has led to low adoption and slower revenue inflows. Some still prefer the traditional manual methods of payment because they find the digital process confusing or unreliable transactions (Respondent F, Male, 45 years, September 2025).

The study indicates that the automation of the revenue collection system in Nnewi North Local Government Area has not yet produced a significant improvement in internal revenue mobilization, suggesting that the mere introduction of automated tools does not guarantee enhanced revenue performance. The effectiveness of such systems relies on factors beyond technological availability, including resident adoption, system reliability, and supportive measures to facilitate proper usage. This finding is consistent with Emeh, Etea, and Elechi (2023), who reported that although numerous legal internal revenue sources exist for Nigerian local government councils, only a few are viable, and these face challenges such as tax evasion, revenue leakages, weak enforcement, unreliable data, poor internal auditing, and manual tax handling, while affirming the usefulness and ease of automation in addressing these issues. Similarly, Monday, Olukemi, Ruth, and Olapeju (2024) found that ICT applications offer significant benefits for local government tax administration but are constrained by technological complexities, infrastructural limitations, financial challenges, and resistance to change, reinforcing the conclusions of this study.

RECOMMENDATIONS

Based on the study findings, it is recommended that:

1. Nnewi North Local Government Council should continue to actively update and monitor its social media platforms and the administrative staff should respond promptly to residents' inquiries and share regular updates on public services. This

will help residents access information quickly and improve communication with the council.

2. Nnewi North Local Government Council should train administrative staff to manage emails efficiently and ensure messages are directed to the correct departments. Residents should be encouraged to use official email of the council for formal requests. This will make email a more reliable channel for official communication.
3. Nnewi North Local Government Council should organise workshops and outreach programmes to teach residents, particularly business owners, how to use online payment platforms to pay for their taxes and other statutory levies. Administrative staff of the council should provide step-by-step guidance and support to the residents, especially those with little exposure on the use of modern technology, to make revenue collection more efficient.
4. Nnewi North Local Government Council should regularly assess how well automated revenue platforms are being used and address any technical or practical challenges. Council staff should provide ongoing assistance to residents struggling with the system. This will improve compliance and boost internal revenue generation by the council.

CONCLUSION

This study demonstrates that the adoption of Information and Communication Technologies (ICT) has had a mixed impact on administrative productivity in Nnewi North Local Government Area. Digital communication tools, particularly social media platforms and the official website, have significantly enhanced the timeliness and accessibility of responses to public service requests, facilitating more direct engagement between residents and local government officials. On the other hand, the automation of the revenue collection system has yielded limited improvements in internal revenue mobilisation, with residents reporting challenges in adoption, usability, and trust in digital payment channels. These findings suggest that while ICT can effectively streamline information dissemination and public interaction, its potential to improve administrative outcomes such as revenue generation is contingent upon complementary factors, including user education, system reliability, and broader compliance culture. Overall, the study highlights the important role of ICT in local governance, affirming its capacity to enhance service

delivery while also revealing the structural and behavioural barriers that may limit its full effectiveness.

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