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Challenges in Applying ICT to Tax Generation in Local Government Administration in Nigeria

Etebom John Monday*
Postdoctoral Fellow, University of Alabama, United States of America
[**Corresponding author*]

Aluko Olukemi A.
Local Government and Development Studies, Obafemi Awolowo University, Ile Ife, Nigeria

Mbadiwe Ruth
Local Government and Development Studies, Obafemi Awolowo University, Ile Ife, Nigeria

Fagbewesa Olapeju E.
Local Government and Development Studies, Obafemi Awolowo University, Ile Ife, Nigeria

Abstract
This paper examines the challenges and drawbacks of integrating Information and Communication Technology (ICT) in tax generation and administration within Nigeria's local governments. Through a questionnaire distributed to stakeholders in tax administration, the study identifies significant benefits of ICT application alongside obstacles such as technological complexities, infrastructural limitations, financial constraints, and resistance to change. To overcome these barriers, the paper suggests improving technological infrastructure, enhancing training and capacity building, securing adequate funding, fostering stakeholder collaboration, launching awareness campaigns, and consistently monitoring and evaluating ICT initiatives. These measures are expected to enhance tax administration processes, boost taxpayer compliance, and improve efficiency and transparency. The study enriches the existing literature by detailing specific challenges to ICT application in tax generation within Nigerian local government administration and providing actionable recommendations for policymakers, practitioners, and researchers to address these issues and leverage ICT's potential in revenue mobilization and governance.

Keywords
Revenue, Information and Communication Technology, Efficiency, Taxation

INTRODUCTION

Information and Communication Technology (ICT) has become a powerful driver of socio-economic development globally, offering transformative opportunities across various sectors, including governance and revenue mobilization. In Nigeria, where local governments are crucial for service delivery and resource allocation, effectively integrating ICT into tax generation processes promises to enhance fiscal sustainability, transparency, and accountability at the grassroots level. Despite the recognized potential of ICT, its application in tax administration within Nigerian local governments faces numerous challenges. These challenges hinder revenue mobilization efforts and the efficient delivery of public services and governance outcomes. Understanding and addressing these barriers are essential to fully harness the potential of ICT to strengthen local government revenue generation and governance effectiveness.

The paper comprehensively analyzes the challenges impeding the successful implementation and utilization of ICT tools for tax generation in Nigerian local governments. By synthesizing existing literature, empirical evidence, and practical insights, this study highlights the technological, infrastructural, institutional, and human resource-related obstacles that obstruct the effective deployment of ICT in local tax administration.

Finally, based on the insights gained from the analysis, the paper offers practical recommendations for policymakers, practitioners, and researchers to effectively address these challenges and leverage ICT as a catalyst for positive change in Nigerian local government tax administration. By bridging the gap between theory and practice, this study seeks to contribute to the ongoing discourse on ICT-enabled governance and revenue mobilization in developing countries, focusing on Nigeria.

LITERATURE REVIEW AND CONCEPTUAL CLARIFICATION

Information and Communication Technology (ICT)

According to Turban, Rainer, and Potter (2005), ICT encompasses "electronic systems used for the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. Laudon and Laudon (2016) state that ICT encompasses "the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing, and transmission systems, as well as network-based control and monitoring functions.

Furthermore, UNESCO (2002) defines ICT as "a diverse set of technological tools and resources used to create, store, manage, and disseminate information and knowledge. ICT refers to "the convergence of telecommunications, computing, and broadcasting in a digital environment" (Kraemer et al., 2009). It encompasses "the hardware, software, networks, and media for the collection, storage, processing, transmission, and presentation of information" (Chaffey et al., 2019). ICT involves "the use of computers and communication technology to process, store, retrieve, and transmit information" (Bocij et al., 2008).

Tax generation

Tax generation, as defined by Omojola (2010) in the Nigerian context, refers to the process by which revenue is collected from taxable entities within the jurisdiction of a local government to fund public goods and services, such as infrastructure development, healthcare, education, and social welfare programs. As Bird (2004) elucidated, tax generation refers to "the process of raising revenue through imposing taxes on individuals, businesses, and other entities within a jurisdiction, intending to finance public expenditures and fulfil government responsibilities. In developing countries like Nigeria, Olusola (2018) emphasizes that tax generation involves "mobilizing resources from domestic revenue sources, including direct and indirect taxes, to support government spending and promote economic development.

Tax generation is the revenue collection process by government authorities through levies imposed on individuals, businesses, and other entities based on income, property ownership, transactions, or activities (Keen & Slemrod, 2017). It encompasses mobilizing financial resources from taxpayers to fund government expenditures and public services" (Bahl & Bird, 2018). Tax generation involves imposing and collecting taxes, duties, and levies by government agencies to finance public goods and services (James & Nobes, 2018).

Local Government Administration

According to Awofeso (2016), local government administration encompasses the system of governance and management at the subnational level, comprising elected officials, administrative personnel, and institutional structures responsible for delivering public services and promoting local development. For Mookodi (2006), local government administration is the decentralized form of governance that brings government closer to the people, enabling them to participate in decision-making processes and ensuring essential services tailored to local needs. Local government administration is "the system of governance and management at the subnational level, comprising elected officials, civil servants, and administrative structures responsible for providing public services and implementing policies within a defined geographical area (Stoker, 2004; Etebom, 2022).

It encompasses the organization, operation, and management of local government entities, including municipalities, districts, and counties, with responsibilities for delivering services such as sanitation, transportation, and public safety" (Falleti & Lynch, 2009). Local government administration involves "the exercise of authority and decision-making by locally elected officials and administrative bodies to address the needs and priorities of communities at the grassroots level" (Peters, 2018).

Challenges of adopting or applying information technology in tax generation

These are some of the key challenges hindering the applicability of ICT in tax generation within Nigerian local government administrations:

1. Technological Infrastructure Deficiencies: In many Nigerian localities, inadequate ICT infrastructure poses a significant barrier to effective tax administration. Access to reliable electricity and internet connectivity is necessary to deploy and utilize ICT tools for tax collection and management.
2. Data Management and Integration: Fragmented data management systems within local government structures hinder the seamless integration of ICT solutions for tax generation. The need for standardized data formats and interoperability among existing systems complicates efforts to streamline tax administration processes.
3. Cybersecurity Risks: The increasing digitization of tax collection processes introduces cybersecurity vulnerabilities that local government administrations may need to be equipped to address. The risk of data breaches, cyberattacks, and identity theft undermines public trust and confidence in ICT-based tax systems.
4. Limited ICT Literacy and Skills: Many local governments staff may need more ICT literacy and skills to utilize digital tax administration platforms effectively. Inadequate training and capacity-building programs exacerbate this challenge, hindering adopting and optimizing ICT tools for revenue mobilization.
5. Resistance to Change and Bureaucratic Inertia: Within local government administrations, resistance to change and entrenched bureaucratic processes can impede efforts to adopt and implement ICT-driven tax collection mechanisms. Institutional inertia, coupled with a reluctance to embrace new technologies, undermines the potential benefits of ICT for enhancing revenue generation.

6. Regulatory and Legal Frameworks: Complex regulatory and legal frameworks governing tax administration in Nigeria may not adequately accommodate the integration of ICT solutions. Unclear or outdated regulations and a need for more harmonization between national and local tax laws create barriers to innovation and implementation.
7. Financial Constraints: Limited budgetary allocations for ICT infrastructure development and capacity building pose significant financial constraints for local government administrations. More funding is needed to ensure the acquisition of necessary ICT hardware and software, as well as the implementation of training programs for staff.

Ability to Pay Theory

Advanced by Adam Smith, the theory assumes that income level determines one's ability to pay taxes and is equivalent to progressive taxation, in which the tax rate rises with an increase in taxable income (Odongo, 2016). Applying the ability to pay theory to ICT adoption in Nigerian local government administration provides a framework for addressing financial disparities and promoting equitable development. Traditionally used in taxation, this theory suggests that those with greater financial capacity should contribute more to public expenditures. When extended to ICT adoption, it implies that wealthier local governments or central authorities should subsidize the ICT initiatives of less affluent local governments, ensuring a more balanced distribution of resources.

Nigeria's Local governments need help implementing ICT due to financial constraints and inadequate infrastructure. According to the Ability to Pay theory, those local governments with higher revenue-generating capabilities are better positioned to invest in necessary ICT infrastructure and training programs. These investments are crucial for establishing a robust digital governance framework, including reliable internet connectivity, power supply, and skilled personnel to manage and utilize ICT tools effectively.

However, many local governments need more financial resources to make these investments independently. Here, the Ability to Pay theory advocates for redistributing resources, wherein wealthier regions or the federal government provide financial and technical support to poorer local governments. This support can take the form of direct funding for ICT projects, subsidies for infrastructure development, or grants for training programs to enhance digital literacy and proficiency among government employees.

In addition to financial support, the theory emphasizes the importance of developing and enforcing comprehensive ICT policies consistent across all local governments. Wealthier local governments or central authorities can play a pivotal role in crafting these policies and ensuring their implementation in less affluent areas. This approach not only standardizes ICT practices but also helps to build a cohesive framework that supports sustainable ICT development across the country.

Security concerns and data protection are also critical aspects of ICT adoption. The Ability to Pay theory suggests that wealthier local governments, with greater financial capacity, can invest in robust cybersecurity measures to protect sensitive information and build public trust. Central authorities can ensure that all regions can access the necessary tools and protocols to safeguard their digital infrastructure by providing financial and technical assistance to less affluent local governments.

Moreover, the theory addresses the issue of the digital divide between urban and rural areas. Rural local governments often lag in ICT adoption due to limited resources and access to digital tools. By redistributing resources and ensuring targeted interventions, the Ability to Pay theory advocates for bridging this divide, promoting inclusive digital development, and ensuring that all citizens benefit from improved public services through ICT regardless of location.

In conclusion, the Ability to Pay theory offers a valuable perspective on overcoming the challenges of ICT adoption in Nigerian local government administration. It underscores the need for equitable resource allocation, financial support, and consistent policy implementation to ensure that all local governments, irrespective of their financial capacity, can leverage ICT for enhanced governance and service delivery. Addressing financial disparities and promoting inclusive development helps create a more efficient and transparent public administration system, ultimately benefiting all citizens.

Technology Acceptance Model (TAM)

Applying the Technology Acceptance Model (TAM) to ICT adoption in Nigerian local government administration provides a comprehensive framework for understanding and addressing the factors influencing technology acceptance among government employees. TAM, developed by Davis in 1989, posits that perceived usefulness (PU) and perceived ease of use (PEOU) are the primary determinants of an individual's intention to use a technology. In the context of local governments in Nigeria, this model helps identify specific challenges and strategies to enhance ICT adoption.

Perceived usefulness refers to the degree to which employees believe using ICT will enhance their job performance. In Nigerian local governments, demonstrating the tangible benefits of ICT—such as improved efficiency, faster service delivery, and reduced corruption—can significantly influence acceptance. For instance, showcasing how ICT can streamline administrative processes, improve record-keeping, and facilitate better communication can make employees more inclined to adopt these technologies. By highlighting success stories and case studies from other local governments that have successfully implemented ICT, the perceived usefulness can be enhanced, leading to greater acceptance and utilization.

Perceived ease of use involves the extent to which employees believe using ICT will be free of effort. Many local government employees in Nigeria may need more exposure to advanced technologies, leading to apprehension and resistance. To address this, investing in user-friendly ICT solutions and providing comprehensive training programs is

crucial. Simplifying interfaces, offering intuitive designs, and ensuring accessible technology can significantly reduce resistance. Additionally, hands-on training sessions, workshops, and continuous support can help employees feel more confident and comfortable using new technologies, thereby increasing the perceived ease of use.

Resistance to change is a significant barrier to ICT adoption within local governments. Employees may be accustomed to traditional methods and wary of new technologies. To overcome this resistance, involving stakeholders early in the process is essential, ensuring their input and addressing their concerns. Change management strategies, including clear communication about the benefits of ICT and the support available, can help alleviate fears and build a positive attitude towards adoption.

The Technology Acceptance Model also highlights the importance of external variables, such as system quality and user support, in influencing perceived usefulness and ease of use. Ensuring the ICT systems are reliable, secure, and well-supported can enhance user acceptance. For example, addressing concerns about data security and providing a robust support system for troubleshooting and guidance can build trust and encourage employees to embrace new technologies.
Furthermore, organizational support plays a critical role in technology acceptance. Leadership commitment to ICT initiatives demonstrated through policies, incentives, and resource allocation, can significantly impact employees' attitudes. Leaders can act as champions of ICT adoption, promoting a culture of innovation and emphasizing the strategic importance of technology in achieving organizational goals.

In conclusion, applying the Technology Acceptance Model to ICT adoption in Nigerian local government administration provides valuable insights into the factors influencing employee acceptance and utilization of technology. Local governments can effectively increase ICT adoption by enhancing perceived usefulness and ease of use by demonstrating benefits, providing user-friendly solutions, offering comprehensive training, addressing resistance to change, ensuring system quality and user support, and fostering organizational support. This approach improves administrative efficiency and service delivery and contributes to greater transparency and accountability in local government operations, ultimately benefiting citizens.

METHODOLOGY

This study employs a qualitative research design with a complement of quantitative data focusing on descriptive and exploratory approaches to understand the challenges and solutions associated with ICT applicability in local government administration in Nigeria. The qualitative design was chosen to gather in-depth insights from local governance and ICT implementation stakeholders.

Primary data were generated through semi-structured interviews with key stakeholders, including local government officials, ICT experts, and policymakers in Ife Central Local Government Area, Osun State. Also, **f**ocus group discussions were held with local government employees to understand their experiences and perceptions regarding ICT adoption. Detailed case studies of selected local governments implementing ICT solutions were analyzed to understand best practices and lessons learned. Secondary data were gathered from a comprehensive literature review, including academic journals, government reports, and policy documents. They were conducted to identify the current state of ICT in local governments and the associated challenges.

Table 1

Characteristics	Frequency	Percentage (100)
SEX		
Male	17	34.0
Female	33	66.0
TOTAL	50	
AGE		
18-25	37	74.0
26-35	7	14.0
36-45	4	8.0
>46	2	4.0
TOTAL	50	
EDUCATIONAL LEVEL OF THE RESPONDENTS		
Secondary school	12	24.0
National Diploma	8	16.0
Bachelor's Degree/HND	27	54.0
Higher degree	3	6.0
TOTAL	50	100
YEARS OF OPERATION		
0-5	24	48.0
6-10	10	20.0
11-15	10	20.0
16-20	6	12.0
TOTAL	50	100

Challenges of ICT Applicability to Tax Generation

Table 2

Statements	SA (F%)	A (F%)	U (F%)	D (F%)	S.D. (F%)	Total %
It has reduced the rate of tax generation.	9 (18.0%)	14 (28.0%)	11 (22.0%)	6 (12.0%)	10 (20.0%)	50 (100.0%)
It has encouraged tax fraud.	12 (24.0%)	9 (18.0%)	14 (28.0%)	9 (18.0%)	6 (12.0%)	50 (100.0%)
It has encouraged tax evasion.	7 (14.0%)	11 (22.0)	16 (32.0%)	5 (10.0%)	11 (22.0%)	50 (100.0%)
It has discouraged tax payments.	9 (18.0%)	9 (18.0%)	11 (22.0%)	8 (16.0%)	13 (26.0)	50 (100.0%)
It has caused a lag in tax payment processing.	11 (22.0%)	12 (24.0%)	10 (20.0%)	7 (14.0%)	10 (20.0%)	50 (100.0%)

Problems militating against the adherence to the use of ICT in tax generation

Table 3

Statements	SA (F%)	A (f%)	U (F%)	S.D. (F%)	D (F%)	Total
Increase in tax rate due to tax and ICT charges	12 (24.0%)	21 (42.0%)	10 (20.0%)	4 (8%)	3 (6%)	50 (100.0%)
Lack of Simplicity	11 (22.0%)	20 (40.0%)	11 (22.0%)	4 (8.0%)	4 (8%)	50 (100.0%)
Illiteracy on how to use the system	20 (40.0%)	13 (26.0%)	8 (16.0%)	6 (12.0%)	3 (6.0%)	50 (100.0%
Lack of government transparency on how taxes are spent	20 (40.0%)	17 (34.0%)	5 (10.0%)	5 (10.0%)	3 (6.0%)	50 (100.%)

DISCUSSION OF FINDINGS

This section provides supplementary discussion on both quantitative and qualitative analysis. It further synchronized the findings with existing studies related to the subject matter. The research on the challenges in ICT applicability in tax generation in local government administration in Nigeria set out to achieve two specific objectives. Firstly, the challenges of applying ICT in tax generation in Ife Central Local Government, Southwestern Nigeria, will be demystified; secondly, problems militating against the adherence to ICT in tax generation within the period in the study area will be identified. As noted in the findings of objective one, The respondents agreed that adopting ICT in tax generation has reduced the rate of tax generation (28.0%). It was left undecided whether adopting ICT in tax administration has encouraged tax fraud. (28.0%). The respondents still need to decide whether adopting ICT in tax generation is challenging and has encouraged tax evasion. The respondents strongly disagreed that adopting ICT in tax generation constitutes a challenge and has discouraged tax payments (26.0%). They also agreed that adopting ICT in tax administration has caused a lag in tax payment processing (24.0%).

The second objective revealed that the respondents agreed that an increase in tax rate due to tax and ICT charges is a problem militating against the adherence to ICT in tax generation (42.0%). They also agreed that lack of simplicity is one of the problems militating the adherence to using ICT in tax administration (40.0%). The respondents strongly agreed that illiteracy in using the system is a problem. They also strongly agreed that lack of transparency on how taxes are spent constitutes a problem militating against the adherence to the use of ICT in tax administration (40.0%).

CONCLUSION

In conclusion, the project "The challenges of ICT in Tax Administration in Ife Central Local Government " sheds light on the disadvantages and challenges associated with integrating Information and Communication Technology (ICT) in tax generation processes. Through a questionnaire and data analysis, valuable insights have been gained, which can contribute to improving tax generation practices in Ife Central Local Government. However, it is essential to acknowledge that adopting ICT in tax administration comes with challenges. The study identified potential drawbacks, such as technological complexities, infrastructural limitations, financial constraints, and resistance to change. These challenges can impede the implementation and adherence to ICT in tax generation and administration. To address these issues, policymakers and stakeholders must invest in adequate technological infrastructure, provide training and support to tax administrators, and address concerns and misconceptions surrounding using ICT in tax-related processes.

Additionally, efforts should be made to address the concerns and challenges faced by stakeholders, including tax administrators and taxpayers, through effective communication, training, and support.

RECOMMENDATIONS

Based on the study's findings, these recommendations are presented to tackle the challenges above and ensure smooth tax generation with the aid of ICT at the local government level in Nigeria.

1. **Enhance Infrastructure Development**:
    - Invest in reliable internet connectivity and robust power supply systems.
    - Partner with private sector companies to improve ICT infrastructure.
2. **Increase Funding**:
    - Allocate specific budgets for ICT development within local government administration.
    - Seek funding from international organizations and development partners.
3. **Build Capacity and Train Personnel**:
    - Implement continuous training programs for local government staff on ICT skills.
    - Collaborate with educational institutions to develop tailored training programs.
4. **Promote Change Management**:
    - Conduct awareness campaigns to highlight the benefits of ICT in governance.
    - Engage stakeholders at all levels to foster a receptive culture to change.
5. **Strengthen Policy and Regulatory Frameworks**:
    - Develop clear policies and regulations to guide ICT implementation and usage.
    - Ensure policies address data privacy, security, and ethical use of ICT.
6. **Implement Strong Cybersecurity Measures**:
    - Invest in cybersecurity infrastructure and training.
    - Develop and enforce policies on data protection and cyber incident response.
7. **Encourage a Maintenance Culture**:
    - Establish regular maintenance schedules and allocate funds for the upkeep of ICT systems.
    - Train staff on the importance and practices of proper ICT maintenance.
8. **Bridge the Digital Divide**:
    - Implement targeted programs to improve ICT access in rural areas.
    - Provide subsidies or incentives for ICT development in underserved regions.
9. **Facilitate Training and Capacity Building**:
    - Develop partnerships with international organizations for training and capacity building.
    - Use a train-the-trainer approach to ensure knowledge transfer within the local government.
10. **Streamline Bureaucratic Processes**:
    - Simplify and expedite decision-making processes related to ICT projects.
    - Reduce red tape through policy reforms and process re-engineering.

By addressing these recommendations, local government administrations in Nigeria can better leverage ICT to improve governance, enhance service delivery, and foster sustainable development.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

AUTHORS' CONTRIBUTION
All authors contributed equally to this research output.

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