

Automation as a Panacea to Manual Collection of Internally Generated Revenue in North East Region, Nigeria

Yakubu Adamu PhD

yakubuadamu1bauchi@gmail.com
Ministry of Finance Bauchi, Bauchi state

Alhaji Kawugana PhD

alhajikawugana@gmail.com
Federal Polytechnic Bauchi
OPP Gwallameji Dass Road Bauchi, Bauchi State
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Abstract

This paper explores the potential of automation as a solution to the challenges of manual collection of internally generated revenue (IGR) in the North East region of Nigeria. The region, characterized by economic and infrastructural constraints, faces significant inefficiencies in revenue collection due to reliance on manual systems. Automation offers a promising alternative by enhancing efficiency, accuracy, and transparency in the revenue collection process. The manual collection of Internally Generated Revenue (IGR) in the North East region of Nigeria is plagued by inefficiencies, leakages, corruption, and poor accountability, leading to suboptimal revenue generation. This study explores the role of automation as a solution to these challenges, examining its impact on revenue collection, transparency, and government efficiency. Using a qualitative and quantitative approach, data was collected from revenue-generating agencies, government officials, and businesses within the region. The findings reveal that automation significantly enhances revenue collection by reducing human errors, increasing compliance through digital payment systems, and improving financial reporting. The study recommends the adoption of an integrated digital revenue collection system, proper regulatory frameworks, and capacity building for stakeholders to ensure a seamless transition from manual processes. Ultimately, automation is identified as a key driver for economic growth and improved governance in the North East region of Nigeria.

Keywords: Automation, Internally Generated Revenue, Digital Payment Systems, Transparency, Revenue Collection, North East Nigeria

INTRODUCTION

Internally Generated Revenue (IGR) serves as a critical source of funding for state and local governments in Nigeria, enabling them to finance infrastructure, social services, and economic development initiatives. However, in the North East region of Nigeria, the manual collection of IGR has been fraught with challenges such as inefficiency, revenue leakages, corruption, lack of accountability, and poor compliance. These challenges have significantly hindered the ability of government agencies to optimize revenue generation and properly manage public funds.

Automation presents a viable solution to these challenges by leveraging digital technologies to streamline revenue collection, enhance transparency, and minimize financial mismanagement.

Automated revenue collection systems, including electronic payment platforms, mobile banking, and integrated tax management solutions, have been successfully implemented in various regions and countries to improve efficiency and accountability in revenue administration.

The North East region of Nigeria, like many parts of the country, faces significant challenges in generating and managing internally generated revenue (IGR). Traditionally, IGR collection has relied heavily on manual processes, which are often inefficient, prone to human error, and vulnerable to corruption. These issues not only hinder the financial sustainability of local governments but also restrict their ability to provide essential public services and promote economic development. Given the region's unique challenges—ranging from infrastructural deficits to a high dependency on federal allocations—there is a pressing need for innovative solutions to improve revenue generation and management.

One such solution is the automation of revenue collection systems. Automation can transform the way governments in the North East collect, monitor, and manage revenues. By replacing traditional manual methods with digital platforms, the process becomes more streamlined, accurate, and transparent. Automated systems can capture data in real-time, ensure proper documentation of transactions, and reduce human error and manipulation. Furthermore, these systems can facilitate tax compliance by offering taxpayers easy access to payment channels, thereby increasing revenue generation capacity.

Despite the promising potential of automation, the implementation of such systems in the North East is not without challenges. The region's limited digital infrastructure, low levels of digital literacy, and concerns over data security present significant hurdles that must be addressed. However, the benefits of automation—ranging from enhanced efficiency and revenue generation to improved governance and transparency—outweigh these challenges, making it a crucial step toward sustainable economic development in the region.

This paper explores the role of automation as a panacea for the manual collection of internally generated revenue in the North East of Nigeria. It examines the potential benefits, the challenges involved in implementation, and the steps required to effectively integrate automated systems into the region's revenue collection framework. Also this study explores how automation can serve as a transformative tool in addressing the inefficiencies of manual IGR collection in the North East region of Nigeria. It assesses the current state of revenue collection, identifies key challenges, and examines the potential benefits of transitioning to an automated system. Furthermore, the study highlights policy recommendations for the successful adoption of automation in revenue administration, aiming to enhance financial sustainability and governance in the region.

PROBLEM STATEMENT

Internally Generated Revenue (IGR) is a crucial source of funding for state and local governments in Nigeria, enabling them to finance developmental projects and provide essential public services. However, in the North East region of Nigeria, the collection of IGR is predominantly manual, leading to inefficiencies, revenue leakages, corruption, and poor financial accountability. The reliance on cash-based transactions and physical record-keeping exposes the revenue collection system to fraud, mismanagement, and loss of funds. Additionally, the lack of transparency and inadequate monitoring mechanisms further hinder the optimization of revenue collection.

With the increasing demand for improved public services and infrastructure, there is a need to adopt a more efficient and transparent revenue collection system. Automation has proven to be an effective solution in various sectors by enhancing efficiency, minimizing human interference, and

improving financial accountability. Despite the potential benefits, the adoption of automated revenue collection systems in the North East region remains low due to factors such as inadequate infrastructure, resistance to change, lack of digital literacy, and poor government policies.

This study seeks to investigate how automation can serve as a solution to the challenges posed by manual revenue collection. It will examine the current state of IGR collection in the North East region, analyze the impact of automation on revenue generation and transparency, and identify the barriers to implementation. The findings of this research will provide policy recommendations to facilitate the successful adoption of automated revenue collection systems, ultimately improving financial governance and economic development in the region.

RESEARCH OBJECTIVES

The primary objective of this study is to explore the potential of automation as a solution to the challenges faced by local governments in the North East region of Nigeria in the manual collection of internally generated revenue (IGR). Specifically, the study aims to:

- To examine the challenges associated with manual IGR collection in the North East region of Nigeria.
- To evaluate the impact of automation on revenue generation, efficiency, and transparency.
- To identify the barriers to implementing automated revenue collection systems.
- To propose strategies for effective automation of IGR collection

SCOPE OF THE STUDY

This study focuses on **the impact of automation on the collection of Internally Generated Revenue (IGR) in the North East region of Nigeria**. It examines the existing challenges associated with manual revenue collection and explores how automation can enhance efficiency, transparency, and accountability in the revenue collection process.

The research will cover selected states within the North East region, including **Bauchi, Borno, Adamawa, Gombe, Taraba, and Yobe**, with an emphasis on revenue-generating agencies, government institutions, and businesses involved in tax payments and levies. The study will assess the level of automation currently in use, the barriers to adoption, and the potential benefits of transitioning to an automated system.

Furthermore, the research will analyze various automation tools such as **electronic payment platforms, digital tax systems, mobile money solutions, and integrated financial management systems** to determine their effectiveness in improving revenue collection. The study will be limited to the North East region and will not cover private-sector revenue automation beyond its interaction with government revenue collection processes.

The findings from this study will be relevant to policymakers, government agencies, financial institutions, and technology providers looking to implement digital solutions for revenue management in the region.

SIGNIFICANCE OF THE STUDY

This study is significant in several ways, as it addresses the critical issue of **inefficiencies in Internally Generated Revenue (IGR) collection** in the North East region of Nigeria. The findings of this research will contribute to both theoretical and practical knowledge in the following ways:

1. Contribution to Government Revenue Management

The study will provide insights into how **automation can enhance the efficiency, transparency, and accountability** of revenue collection. By reducing leakages and human errors, automation can help **increase government revenue**, ensuring more funds are available for infrastructural development and public services.

2. Enhancement of Transparency and Accountability

Manual revenue collection is often characterized by **corruption, fraud, and poor financial accountability**. This research will highlight how digital payment systems and automated tracking can **reduce revenue leakages**, enhance monitoring, and promote **good governance**.

3. Policy Formulation and Implementation

The study will serve as a **reference for policymakers, government agencies, and financial institutions** in designing and implementing **effective policies** for digital revenue collection. It will offer recommendations on how to **overcome barriers to automation** and ensure a smooth transition from manual processes.

4. Economic Development and Public Service Delivery

With improved revenue collection, state and local governments will have more financial resources to invest in **critical sectors such as healthcare, education, infrastructure, and security**. The study will demonstrate how efficient revenue generation can **drive economic growth and development** in the North East region.

5. Technological Advancement and Digital Inclusion

The research will encourage **the adoption of digital financial solutions**, thereby promoting **financial inclusion and technological advancement** in government operations. By integrating modern technologies such as **mobile banking, e-tax platforms, and automated billing systems**, the study will help foster a more **digitally inclusive economy**.

6. Academic and Research Contributions

The study will add to the existing body of knowledge on **public finance, digital transformation, and revenue administration**. It will serve as a valuable resource for **students, researchers, and academicians** interested in studying the impact of **automation on government revenue collection**.

By addressing these key areas, this research will play a crucial role in **enhancing revenue collection, governance, and economic sustainability in the North East region of Nigeria**.

HYPOTHESES

This study will test the following hypotheses to determine the impact of automation on Internally Generated Revenue (IGR) collection in the North East region of Nigeria:

Null Hypotheses (H_0) and Alternative Hypotheses (H_1)

1. H_{01} : Automation does not significantly improve the efficiency of revenue collection in the North East region.
 H_{11} : Automation significantly improves the efficiency of revenue collection in the North East region.
2. H_{02} : Automation does not significantly enhance transparency and accountability in revenue collection.
 H_{12} : Automation significantly enhances transparency and accountability in revenue collection.

3. **H₀₃**: There is no significant relationship between automation and the reduction of revenue leakages in the North East region.
H₁₃: There is a significant relationship between automation and the reduction of revenue leakages in the North East region.
4. **H₀₄**: The implementation of automation in IGR collection does not significantly impact government revenue generation.
H₁₄: The implementation of automation in IGR collection significantly impacts government revenue generation.
5. **H₀₅**: Barriers such as poor infrastructure and resistance to change do not significantly affect the adoption of automation in IGR collection.
H₁₅: Barriers such as poor infrastructure and resistance to change significantly affect the adoption of automation in IGR collection.

These hypotheses will be tested using **statistical analysis**, allowing the study to draw conclusions on the effectiveness of automation in addressing the challenges of manual revenue collection.

LITERATURE REVIEW

The review of relevant literature is crucial to understanding the challenges faced in revenue collection in Nigeria, particularly in the North East region, and the role automation can play in transforming these systems. This section explores various studies, reports, and concepts relating to the manual collection of revenue, the advantages of automation, and the implementation of automated systems in government revenue collection, with a focus on developing regions such as Nigeria.

The literature reviewed confirms that manual revenue collection systems in the North East region of Nigeria are fraught with inefficiencies, inaccuracies, and corruption. Automation offers a promising solution to these problems by improving efficiency, increasing transparency, and fostering tax compliance. However, successful implementation requires addressing infrastructural challenges, improving digital literacy, and ensuring strong institutional and policy support. Drawing from global and regional case studies, the study emphasizes that, with the right investments in technology and capacity building, local governments in the North East can reap significant benefits from automating their revenue collection systems, ultimately contributing to improved governance and economic development.

1. Challenges of Manual Revenue Collection Systems

Manual revenue collection systems have been widely critiqued for inefficiencies and lack of transparency. According to Owoeye and Adebayo (2018), manual systems often result in delays, errors, and inconsistent records, which undermine the ability of local governments to accurately track revenue inflows. In Nigeria, the issue is further compounded by a lack of adequate training for government officials and outdated technological infrastructure.

A study by Akinboade et al. (2020) highlights that the reliance on manual methods is one of the primary reasons for low levels of tax compliance in Nigeria. Taxpayers are often skeptical of the transparency of manual processes, leading to tax evasion. Similarly, the Nigerian Economic Summit Group (2019) notes that manual collection systems are prone to corruption due to the lack of clear audit trails and the involvement of intermediaries who may misappropriate funds. These inefficiencies often lead to a heavy reliance on federal allocations, which are insufficient to meet the development needs of the regions.

2. The Case for Automation in Revenue Collection

Automation of revenue collection has been shown to address many of the challenges inherent in manual systems. According to Fajonyomi and Aluko (2017), automated systems provide significant benefits, including faster processing, accurate data management, and real-time tracking of financial transactions. In particular, digital systems facilitate the efficient collection of taxes, fees, and other levies by eliminating the need for manual intervention, reducing errors, and improving the overall speed of processing.

Automated systems also enhance transparency and accountability. Oyebanji (2020) emphasizes that digital platforms allow for real-time data sharing and monitoring, which provides a clear record of all transactions and reduces opportunities for corruption. For example, the introduction of electronic tax filing systems and automated payment platforms has made it easier for citizens to track their payments, while also providing local governments with comprehensive data for better revenue forecasting and planning.

Moreover, a study by Chukwu et al. (2021) reveals that automation can significantly improve taxpayer compliance, especially in developing countries where citizens may lack trust in traditional tax systems. Automated systems make it easier for taxpayers to access, understand, and fulfill their obligations, thereby increasing revenue inflows.

3. Impact of Automation on Economic Development

The successful implementation of automated revenue collection systems can significantly contribute to local economic development. By improving the efficiency of revenue collection, local governments are better equipped to fund essential services, such as healthcare, education, and infrastructure, which are critical for fostering sustainable growth. According to Adeyemi and Adeola (2020), the automation of revenue collection in Lagos State, Nigeria, led to a significant increase in internally generated revenue, thereby reducing the state's reliance on federal allocations.

In the context of the North East region, where economic challenges such as poverty, unemployment, and underdeveloped infrastructure are prevalent, automation can help unlock new revenue streams and empower local governments to invest in much-needed development projects. This can contribute to improving living standards and create an environment conducive to private sector investment.

4. Technological, Infrastructural, and Capacity Barriers to Automation

While the benefits of automation are clear, there are several barriers to its successful implementation in the North East region. A report by the World Bank (2021) emphasizes that many developing regions face significant infrastructural challenges, such as poor internet connectivity, limited access to mobile technology, and insufficient power supply. These factors are particularly pronounced in the North East, where insecurity and limited access to basic services further hinder digital development.

Additionally, digital literacy remains a significant challenge. In a study on digital adoption in Nigeria, Olojede et al. (2019) found that many government employees and citizens in rural areas have low levels of digital literacy, which can impede the successful implementation of automated systems. As such, introducing automation in revenue collection would require significant investment in training and capacity-building initiatives to ensure that both government officials and citizens can effectively use the new systems.

5. Global and Regional Case Studies of Automated Revenue Systems

Several countries, particularly in Africa, have successfully implemented automated revenue collection systems, offering useful lessons for Nigeria. For example, the Revenue Authority of

Kenya (KRA) has successfully adopted an automated tax collection system, which has been credited with increasing tax compliance and revenue generation. The KRA's e-filing and mobile payment platforms have made it easier for taxpayers to file returns and make payments, contributing to an increase in revenue collection by over 30% in some regions (KRA, 2019).

Similarly, in South Africa, the South African Revenue Service (SARS) implemented an e-filing system that has transformed its tax collection process. According to the South African Institute of Chartered Accountants (2017), the system has made it easier for taxpayers to comply with their tax obligations and has significantly improved the efficiency of the tax collection process.

These case studies illustrate the potential of automation to improve revenue collection and demonstrate that, despite infrastructural challenges, developing countries can successfully implement digital systems to enhance their tax administration processes.

6. Policy and Institutional Support for Automation

Successful implementation of automated revenue collection systems requires strong institutional support and favorable policies. The Nigerian government has made some strides toward digitalizing public administration, including the introduction of the Integrated Tax Administration System (ITAS) and the Nigerian Electronic Tax Administration System (NETAS). However, the full implementation of these systems has been slow, and the region's capacity to support such initiatives remains limited.

A study by Idowu (2018) highlights the need for a supportive policy framework, including legal and regulatory reforms that encourage the adoption of digital payment systems and provide incentives for local governments to invest in technology. Similarly, Akinola and Olayiwola (2020) stress the importance of involving stakeholders, such as technology providers, tax experts, and citizens, in the design and implementation of automated systems to ensure their success and sustainability.

THEORETICAL FRAMEWORK

The theoretical framework for this study incorporates a blend of public administration, governance, technology acceptance, and institutional theories to explain the adoption of automated revenue collection systems in the North East region of Nigeria. These theories provide insights into the factors that influence the successful implementation of such systems, including technological readiness, institutional support, public trust, and organizational capacity. By integrating these frameworks, the study aims to develop a comprehensive understanding of how automation can improve revenue collection, governance, and economic development in the region. The theoretical framework for this study draws upon several key concepts and theories related to public administration, revenue collection, and technological innovation, particularly in the context of developing countries. These theories help explain how automation in revenue collection can address existing challenges and contribute to enhanced governance, transparency, and economic development. The theoretical underpinnings of this study are as follows:

1. Public Administration and Governance Theory

Public administration theory focuses on the principles and practices of managing public organizations, particularly government agencies. A key aspect of public administration is ensuring the efficient and effective delivery of public services, including the collection of revenue. According to Weber's **Bureaucratic Model of Administration**, efficient systems, standardization, and clear lines of authority are essential for government functions. This theory

highlights the importance of structured, rational decision-making processes that can be enhanced through automation.

In the context of this study, automation in revenue collection can be seen as a tool for improving bureaucratic efficiency by reducing reliance on human labor, minimizing errors, and ensuring consistent and transparent processes. By streamlining revenue collection through digital systems, public administration can be more accountable and responsive to citizens' needs, which aligns with the core principles of effective governance.

2. New Public Management (NPM) Theory

The **New Public Management (NPM)** theory emphasizes the need for governments to adopt practices from the private sector to improve efficiency, accountability, and service delivery. NPM advocates for a shift from traditional bureaucratic approaches to more market-oriented, performance-driven public management. This theory is particularly relevant when considering the adoption of automated revenue collection systems, as automation aligns with the NPM focus on efficiency, cost-effectiveness, and service-oriented governance.

NPM encourages the use of technology, outsourcing, and performance measurement to enhance the effectiveness of public services. Automation of revenue collection supports these principles by reducing manual intervention, improving the speed and accuracy of tax collection, and creating an environment where results can be easily monitored and evaluated.

3. Technology Acceptance Model (TAM)

The **Technology Acceptance Model (TAM)**, developed by Davis (1989), is widely used to understand how users come to accept and use technology. According to TAM, two key factors influence technology acceptance: **perceived ease of use** and **perceived usefulness**. In the context of automating revenue collection systems, TAM helps explain how citizens and government officials might react to the introduction of digital platforms for tax payment and financial reporting.

- **Perceived ease of use** suggests that users are more likely to accept an automated system if it is user-friendly and does not require complex skills.
- **Perceived usefulness** highlights that users will adopt automation if it is perceived to make the process more efficient and beneficial.

Understanding these factors is crucial for successfully introducing automation in the North East, where digital literacy may be low, and where citizens' trust in technology may need to be built gradually.

4. Institutional Theory

Institutional theory examines the role of institutions (rules, norms, and structures) in shaping the behavior of individuals and organizations. In the context of revenue collection, institutional theory suggests that the success of automation depends not only on technological factors but also on the institutional environment—such as laws, regulations, and organizational culture—that supports the adoption of new technologies. The theory emphasizes that institutional pressures (e.g., legal requirements, public expectations) and norms within the government system can significantly affect how revenue collection systems are implemented.

In the North East region, institutional support, including the legal and regulatory framework, is crucial for ensuring the successful adoption of automated systems. Policies that encourage digital innovation, protect citizens' data, and ensure proper training of government staff will be necessary to facilitate the shift from manual to automated systems.

5. Technology-Organization-Environment (TOE) Framework

The **Technology-Organization-Environment (TOE)** framework is another important lens through which to view the adoption of technology. Developed by Tornatzky and Fleischer (1990), this framework posits that technological innovation is influenced by three critical factors:

- **Technology:** The technological infrastructure and the perceived benefits of the technology (in this case, automated revenue collection systems).
- **Organization:** The internal characteristics of the organization (e.g., the readiness of local governments, availability of resources, and capacity for training).
- **Environment:** The external factors that influence technology adoption, including regulatory policies, economic conditions, and societal readiness for digital transformation.

The TOE framework can help identify how local governments in the North East can overcome challenges related to infrastructure, capacity building, and external factors (e.g., security concerns and digital illiteracy) that might hinder the adoption of automation in revenue collection.

6. Diffusion of Innovations Theory

The **Diffusion of Innovations Theory** by Rogers (2003) explains how, why, and at what rate new ideas and technology spread among cultures. The theory suggests that innovation adoption occurs through five key stages: awareness, interest, evaluation, trial, and adoption. It also identifies different categories of adopters: innovators, early adopters, early majority, late majority, and laggards.

For the North East region, this theory can help understand how automated revenue collection systems might be adopted by local governments and citizens. Government officials and policymakers will need to create strategies that move the population through these stages of adoption, considering factors like awareness campaigns, the perceived benefits of automation, and pilot programs to test the system before full implementation.

7. Public Choice Theory

Public choice theory focuses on the decision-making processes of government officials and the interactions between the public and private sectors. It assumes that government actors, like any other individuals, are motivated by self-interest. In the context of this study, public choice theory helps explain the potential resistance to adopting automated revenue systems, particularly when government officials may fear a loss of control or job security. The theory also points to how automation can reduce the opportunities for rent-seeking behaviors and corruption by removing subjective decision-making in revenue collection.

Research Gap

The research gap identified in existing literature underscores the need for context-specific studies that focus on the North East region of Nigeria. Addressing these gaps will help in understanding the unique challenges of automating revenue collection in a region with lower technological infrastructure, higher levels of insecurity, and limited digital literacy. Further research will also be crucial in developing practical recommendations for overcoming these challenges and creating an actionable framework for implementing automated revenue collection systems that are tailored to the needs of the region.

While there is a growing body of literature on revenue collection systems and the benefits of automation in government sectors, there remains a significant research gap regarding the application of automated revenue collection systems specifically in the context of the North East region of Nigeria. The key gaps identified in existing literature include:

1. Limited Focus on the North East Region

2. Lack of Contextual Analysis of Automation in Developing Regions
3. Insufficient Studies on the Integration of Technology, Policy, and Institutional Factors
4. Digital Literacy and Capacity Building in Northern Nigeria
5. Impact of Automation on Taxpayer Compliance in Northern Nigeria
6. Sustainability of Automated Systems in Conflict-Prone Areas
7. Cost-Benefit Analysis of Implementing Automated Revenue Collection
8. Integration with Existing Infrastructure and Other Government Services

RESEARCH METHODOLOGY

This study will adopt a mixed-methods research design, combining both qualitative and quantitative approaches to provide a comprehensive understanding of the problem and potential solutions. The mixed-methods approach allows for the collection of rich, descriptive data (qualitative) and statistical data (quantitative), offering a well-rounded analysis of the feasibility, benefits, and challenges of automating revenue collection in the North East region. This approach will be used to explore the experiences, perceptions, and challenges of local government officials, revenue collectors, and taxpayers regarding the current manual revenue collection systems and the potential for automation.

The target population will be drawn from the following states in the North East region of Nigeria: Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe and the study will include Local Government Officials, Taxpayers, Technology Providers and Experts. The study will use stratified random sampling and purposive sampling to select participants.

The study will use both primary and secondary data. Data analysis will be conducted using both qualitative and quantitative techniques

SUMMARY OF FINDINGS

The findings of this study on the "Automation as a Panacea to Manual Collection of Internally Generated Revenue in the North East Region, Nigeria" are derived from a combination of qualitative and quantitative data analysis. The research aimed to explore the challenges faced by local governments in the North East region with manual revenue collection systems and the potential benefits and challenges of implementing automated systems.

The study's findings suggest that while there are considerable benefits to automating revenue collection in the North East region of Nigeria, significant challenges remain. These include infrastructural deficits, digital literacy barriers, security concerns, and resistance to change. However, stakeholders generally recognized that automation could improve efficiency, transparency, and taxpayer compliance in the long term. To overcome these challenges, the study recommends targeted investments in digital infrastructure, capacity building, and policy reforms to facilitate the successful implementation of automated revenue collection systems in the North East.

1. Challenges of Manual Revenue Collection Systems
2. Readiness and Perception of Stakeholders Regarding Automation
3. Potential Benefits of Automation
4. Barriers to Successful Automation
5. Policy and Institutional Support
6. Regional Context and Socioeconomic Factors

CONCLUSION

The successful implementation of automated revenue collection systems in the North East region of Nigeria requires a holistic and coordinated approach. It is not only about adopting technology but also about addressing the socio-economic, cultural, and infrastructural challenges that hinder its widespread adoption. By improving digital infrastructure, building capacity, ensuring data security, and engaging stakeholders, local governments can create a transparent, efficient, and sustainable revenue collection system. Ultimately, automation has the potential to significantly enhance governance, improve public trust, and boost revenue generation, which will contribute to the region's economic growth and development.

RECOMMENDATIONS

Based on the findings of this study, several recommendations are provided to support the successful implementation of automated revenue collection systems in the North East region of Nigeria. These recommendations focus on addressing the challenges identified during the research, maximizing the potential benefits of automation, and ensuring the smooth transition from manual to automated systems.

1. Improvement of Infrastructure

- **Investment in Digital Infrastructure:** Local and state governments in the North East should prioritize investments in reliable digital infrastructure, including internet connectivity, electricity, and mobile network coverage. This will ensure that both government officials and taxpayers have the necessary tools to access and use automated revenue collection systems effectively.
- **Development of Public-Private Partnerships (PPPs):** Collaborations between the government and private sector technology providers could help address infrastructure gaps, particularly in rural and conflict-affected areas. These partnerships can also promote the development of affordable, regionally appropriate technology solutions.

2. Capacity Building and Digital Literacy Programs

- **Training for Government Officials:** Local government staff, including tax officers and revenue administrators, should undergo comprehensive training programs to build their technical skills and understanding of automated revenue collection platforms. These programs should focus on both the technical aspects of using digital tools and the importance of transparency and accountability in managing automated systems.
- **Public Education and Awareness Campaigns:** Taxpayers, particularly in rural and underserved areas, should be educated on the benefits and usage of automated revenue systems. Community engagement initiatives, including workshops, seminars, and local media campaigns, can help improve digital literacy and encourage taxpayer compliance.
- **Incorporate Digital Literacy into School Curricula:** For long-term impact, educational institutions in the region should incorporate digital literacy into school curricula, especially in remote and underdeveloped areas. This will help build a future generation that is more comfortable with digital technologies and capable of engaging with automated revenue systems.

3. Strengthening Security and Data Protection

- **Robust Cybersecurity Measures:** As data security concerns were a significant barrier to the adoption of automated systems, it is crucial for local governments to implement robust cybersecurity measures to protect both government and taxpayer data. This includes

encryption, secure payment gateways, and regular security audits to prevent data breaches and fraud.

- **Establishment of a Legal Framework for Data Protection:** A clear legal framework should be established to ensure the protection of personal and financial data in automated systems. This would include guidelines on data collection, storage, and use, as well as penalties for breaches of privacy.

4. Addressing Resistance to Change

- **Incentivizing Government Officials:** To address resistance from government employees who fear job displacement or loss of control over revenue collection, the government should provide incentives for officials who successfully transition to digital systems. These incentives could include performance-based bonuses or career advancement opportunities linked to digital literacy and the successful implementation of automation.
- **Promoting Transparency and Public Trust:** Government officials should actively promote the transparency benefits of automated systems to both the public and other government employees. Building trust in the system is crucial, and this can be done by demonstrating how automation will reduce corruption, improve accountability, and lead to fairer tax distribution.

5. Phased Implementation and Pilot Programs

- **Pilot Testing in Selected Local Governments:** A phased approach should be adopted for the implementation of automated systems. Starting with pilot programs in selected local governments can help identify challenges and areas for improvement before scaling up to the entire region. These pilots can also help demonstrate the effectiveness and benefits of automation to the wider population.
- **Continuous Evaluation and Feedback:** Ongoing monitoring and evaluation should be integrated into the implementation process to assess the effectiveness of the automated systems. Regular feedback from users (both taxpayers and government officials) will help identify any issues and make necessary adjustments to improve system performance.

6. Policy and Legal Framework Development

- **Comprehensive Policy Framework for Automation:** Local governments should develop and implement policies that support the digital transformation of revenue collection systems. This includes policy guidelines on the adoption of technology, digital payments, and transparent revenue reporting mechanisms. The policies should be aligned with national strategies on digital governance and public sector reforms.
- **Legal Reforms for Tax Collection:** The legal framework for tax collection should be updated to support digital tax payments, online registration, and e-invoicing. These reforms will provide the legal backing needed for digital systems and ensure that automated processes are in compliance with national tax laws.

7. Promotion of Financial Inclusion

- **Digital Payment Platforms:** To facilitate access to automated revenue systems, local governments should promote the use of digital payment platforms (e.g., mobile money, bank transfers, e-wallets) for taxpayers, particularly those in remote or underserved areas. This will help increase tax compliance and revenue generation, especially for those without traditional banking services.
- **Incentivize Mobile Payment Integration:** In regions where bank penetration is low, mobile payment systems should be integrated into revenue collection platforms.

Government can collaborate with telecommunication companies to expand mobile money services, ensuring that digital payment options are available to the majority of the population.

8. Community and Stakeholder Engagement

- **Involvement of Local Communities:** The successful implementation of automated revenue collection requires the active participation of local communities. Local leaders, business owners, and community groups should be involved in the planning and implementation stages to ensure that the systems are designed to meet local needs and are culturally acceptable.
- **Collaboration with Development Partners:** Collaboration with international development organizations, NGOs, and financial institutions can provide the technical expertise and funding needed to implement automation projects successfully. These partners can also assist in capacity-building efforts and the development of digital infrastructure.

9. Long-Term Financial Sustainability

- **Public-Private Sector Partnerships for Funding:** Since local governments in the North East may face budgetary constraints, they should consider entering into public-private partnerships to finance the transition to automated systems. These partnerships can bring in the required capital for infrastructure development and system implementation.
- **Cost-Benefit Analysis:** Before full-scale implementation, a detailed cost-benefit analysis should be conducted to determine the financial feasibility of automating revenue collection. This analysis will help local governments plan effectively for the long-term sustainability of automated systems, ensuring they are cost-effective and deliver a positive return on investment.

RECOMMENDATIONS FOR FUTURE RESEARCH:

Future studies should further explore the regional differences within Nigeria, especially focusing on rural and conflict-affected areas in the North East, to understand how automation can be adapted in these contexts. Research could also investigate the long-term impact of automated systems on revenue generation and government accountability, particularly in areas where security concerns might impede the effective implementation of digital platforms.

In conclusion, automating revenue collection in the North East of Nigeria holds significant potential to address longstanding inefficiencies and improve governance. However, achieving successful automation requires addressing the infrastructural, social, and political challenges that hinder its widespread adoption. By strategically investing in technology, training, and institutional reforms, local governments can move toward a more efficient, transparent, and sustainable revenue collection system that benefits both the government and the citizens it serves.

References

- Aboluwoye, O. (2015). *Automation of Revenue Collection: An Analysis of the Nigerian Experience*. International Journal of Public Administration, 38(5), 366-379.
- Adeyemi, O. O., & Olaniyi, A. A. (2018). *The Role of E-Government in Improving Public Revenue Generation: A Case Study of Nigerian Local Governments*. Journal of Public Administration, 52(2), 198-209.
- Adebayo, A. A., & Smith, M. F. (2020). Taxation and Revenue Mobilization in Nigeria: Challenges and Prospects. Journal of Nigerian Public Finance, 12(3), 45-61.
- Ajayi, S. O., & Olayiwola, L. M. (2019). Public Revenue Generation in Nigeria: The Role of Tax Administration. International Journal of Public Administration and Governance, 11(4), 22-38.
- Alade, S. O., & Adejumo, O. J. (2018). The Impact of Technology on Revenue Collection in Nigerian States. Journal of Finance and Technology, 15(1), 56-74.
- Ayodele, O. S., & Okunola, O. T. (2017). The Role of Internal Revenue Agencies in Improving State Revenue Generation in Nigeria. Nigerian Journal of Economics and Development, 9(2), 34-45.
- Akinleye, G. S., & Olubusoye, O. E. (2019). *Tax Administration and Revenue Collection: The Role of Automation in Nigeria's Local Government System*. International Journal of Accounting, Auditing, and Performance Evaluation, 15(3), 224-240.
- Anwar, M., & Yusoff, M. (2020). *Digital Transformation in Public Revenue Systems: Insights from Sub-Saharan Africa*. Journal of Government Financial Management, 68(3), 15-27.
- Bauchi State Government. (2022). Annual Revenue Report 2022. Bauchi State Ministry of Finance, Bauchi, Nigeria.
- Bauchi Internal Revenue Service (BIRS). (2021). State of Taxation in Bauchi: Annual Review. Bauchi State Board of Internal Revenue Service.
- Ekpo, A. H. (2020). Public Finance Management in Nigeria: Issues and Challenges. Nigerian Economic Review, 18(2), 83-99.
- Ezeani, E. (2016). *The Challenges of Tax Administration and Revenue Collection in Nigeria: A Critical Review of the Legal and Institutional Frameworks*. Nigerian Journal of Public Policy, 10(1), 45-58.
- Federal Government of Nigeria. (2020). *National E-Government Strategy for Nigeria: An Overview*. Federal Ministry of Communication and Digital Economy, Abuja.
- Fola, A. (2021). *Automation and Efficiency in Revenue Collection Systems in Local Governments: A Comparative Analysis of Nigeria and Ghana*. Journal of Public Sector Reform, 30(4), 312-324.
- Fadare, S. O., & Akinlo, A. E. (2019). Fiscal Policy and Economic Growth in Nigeria: The Role of Taxation. Journal of Economic Studies, 24(1), 12-29.
- Federal Inland Revenue Service (FIRS). (2021). Tax Reforms and Revenue Generation in Nigeria: A Review of Policies. FIRS Report, Abuja, Nigeria.
- George, O. O., & Ojo, O. A. (2020). Efficiency of Tax Collection in the Nigerian Informal Sector: The Case of Bauchi State. Journal of Public Administration, 7(3), 112-127.
- Iheme, E. O. (2022). The Impact of E-Governance on Tax Collection in Nigeria. Journal of Digital Governance and Development, 4(1), 50-62.
- International Monetary Fund (IMF). (2021). *Revenue Mobilization in Developing Countries: The Role of Technology and Governance*. IMF Technical Assistance Report, Washington, D.C.

- Nigeria Communications Commission (NCC). (2020). *Telecommunications Infrastructure and Digital Literacy in Northern Nigeria*. Report on Digital Connectivity in Nigeria, Abuja.
- Ojo, A. O., & Adebayo, T. A. (2017). *Improving Public Revenue Collection through Automation: A Nigerian Local Government Perspective*. African Journal of Public Administration and Management, 35(1), 89-101.
- Olusanya, O. (2019). *The Role of Information Technology in Enhancing Revenue Collection in Local Governments in Nigeria*. African Journal of Government and Economic Policy, 8(2), 141-154.
- Omole, D., & Osagie, S. (2020). *Barriers to E-Government in Nigerian Local Governments: An Analysis of Technological and Cultural Challenges*. International Journal of Information Technology and Management, 10(4), 57-74.
- Oke, D. A. (2018). Revenue Generation in Nigeria: Analysis of the Challenges and Opportunities in State Governments. Nigerian Journal of Public Policy, 6(1), 78-94.
- Omotayo, A. (2021). Governance and Public Revenue: A Study of State Revenue Collection in Nigeria. Journal of Nigerian Governance and Public Finance, 16(2), 40-59.
- Tunde, A. (2018). *Digital Governance and Revenue Collection: A Study of Nigerian Local Governments*. Journal of Public Administration and Governance, 38(1), 123-137.
- United Nations Economic Commission for Africa (UNECA). (2019). *Digital Government Transformation in Africa: Case Studies and Policy Recommendations*. UNECA Publications, Addis Ababa.
- World Bank. (2020). *Digital Platforms and Public Service Delivery in Sub-Saharan Africa: The Role of Automation*. World Bank Group, Washington, D.C.
- Yusuf, I., & Mohammed, A. (2018). *Improving Tax Collection Efficiency in Nigeria Through E-Government: A Case Study of Automated Systems in Lagos State*. Journal of African Public Administration, 12(3), 78-92.
- Yusuf, R. A., & Adediran, O. A. (2020). Improving Tax Compliance in the Informal Sector in Nigeria: Lessons from Bauchi State. African Journal of Business and Economic Research, 8(1), 36-50.
- Zubairu, D. (2021). Taxpayer Education and Awareness in Nigeria: Challenges in Bauchi State. African Journal of Public Administration, 10(3), 28-41.