

The Paradox of Digital Enforcement: Analyzing the Implementation Friction of EFRIS among Urban SMEs in Kampala

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Abstract

The global shift toward digital tax administration promises enhanced efficiency and transparency, yet its implementation in developing economies often faces severe structural headwinds. This study investigates the “implementation friction” of the Electronic Fiscal Receipting and Invoicing System (EFRIS) among Small and Medium Enterprises (SMEs) in Rubaga Division, Kampala. Utilizing a qualitative case study design, the research gathers data from 35 participants, including SME owners and tax officials, to understand the operational dissonance between policy design and grassroots reality. Guided by the Technology Acceptance Model (TAM) and the Slippery Slope Framework, the study reveals that the imposition of high-tech digital solutions on a semi-formal sector lacking basic digital infrastructure has created a “compliance paradox.” Instead of simplifying tax payment, EFRIS has introduced new barriers related to connectivity, cost, and technical literacy, leading to alienation and resistance. The study concludes that without parallel investments in digital literacy and infrastructure, digitization efforts may inadvertently widen the tax gap. It recommends a phased, human-centric digital integration strategy and the adoption of “offline-capable” compliance mechanisms.

Keywords: digital tax administration, EFRIS, technology acceptance, implementation friction, SME compliance, Uganda

1. Introduction & Background of the Study

Taxation has always evolved alongside technology. From ancient systems that relied on handwritten records and clay tablets to more structured ledger books in the industrial era, governments have continuously adapted their revenue collection methods to match available tools. In the 21st century, this evolution has taken

the form of digital taxation systems, often referred to as e-taxation. These systems are widely promoted in developing economies as a way to improve efficiency, reduce corruption, and expand the tax base. Global financial institutions such as the World Bank and the International Monetary Fund (IMF) have consistently encouraged the adoption of digital

tax systems, arguing that they enhance compliance and reduce revenue leakages (World Bank, 2025; International Monetary Fund, 2026).

In Uganda, this global shift became more visible with the introduction of the Electronic Fiscal Receipting and Invoicing System (EFRIS) by the Uganda Revenue Authority in 2020, with full implementation taking effect in 2021. EFRIS was designed to modernize value-added tax (VAT) administration by enabling real-time tracking of business transactions and improving transparency in tax reporting (Anaso, 2025; Lees, 2025). Early assessments of the system show mixed outcomes. On one hand, there has been an increase in VAT compliance among registered firms, with some studies reporting growth in compliance rates from 46.7% to 55.8%. On the other hand, initial implementation phases were associated with reduced VAT collections and increased operational costs for businesses adapting to the system (Anaso, 2025).

Despite its intended benefits, the rollout of EFRIS has also highlighted long-standing tensions in African tax reform processes. Historically, tax modernization efforts have often reflected a mismatch between state administrative capacity and the realities of informal and small-scale enterprises. As Joshi and Ayee (2008) observe, reforms that rely heavily on formal digital systems often struggle to accommodate the informal nature of many African economies. In Uganda, this tension became more visible in 2024, when enforcement of EFRIS affected more than half of the surveyed businesses, many of which reported increased compliance costs and operational strain. These challenges contributed to widespread trader protests in Kampala, which eventually led to government intervention regarding penalties associated with the system (Economic Policy Research Centre, 2024).

This study is situated in Kampala City, specifically Rubaga Division, an area characterized by a dense concentration of small and medium-sized enterprises (SMEs) operating in largely cash-based and informal markets. In such environments, the introduction of a digital tax system like EFRIS represents a significant structural shift. While global evidence suggests that digital tax systems can improve long-term compliance and broaden the tax base when properly supported, their short-term impact in low-resource settings can be challenging. In Rubaga, businesses continue to face infrastructural limitations such as inconsistent

electricity supply, expensive internet access, limited digital literacy, and the high cost of compliance tools, including hardware and software (Economic Policy Research Centre, 2024; Besigomwe, 2025).

Recent research further shows that although some SMEs that successfully adopt EFRIS report improved business performance and streamlined tax processes, overall adoption remains uneven. Barriers such as lack of awareness, insufficient training, and inadequate technical support continue to hinder full integration of the system among small businesses (Kassagga, 2025). These findings suggest that the benefits of digital taxation are not evenly distributed across business categories.

This study therefore examines the growing tension between the government's objective of enhancing fiscal transparency through digital systems and the survival realities of SMEs operating in resource-constrained environments. It is particularly concerned with the emerging "digital divide in taxation," where larger, well-resourced firms are better positioned to benefit from digital systems, while smaller enterprises bear a disproportionate share of the costs associated with compliance (Besigomwe, 2025; CIPESA, 2022). Broader African research on digital public infrastructure reinforces this concern, emphasizing that successful implementation of e-tax systems depends on affordability, accessibility, and inclusiveness to avoid deepening existing inequalities (ICTD, 2025; Heckemeyer et al., 2024).

Current Issues and Justification of Key Concepts

The current issue facing the Uganda Revenue Authority (URA) is the "rebellion of the margins." SMEs in Rubaga are increasingly viewing digital tax tools not as aids, but as weapons of economic oppression. The key concept of Implementation Friction is central here, the resistance that occurs when a new technology clashes with existing social and economic workflows. Another vital concept is Technocratic Exclusion, in which citizens are excluded from economic participation because they cannot navigate the technical requirements of the state (Bertolini, 2020). This study is important because it interrogates the assumption that "digital is always better." It questions the efficacy of imposing high-tech solutions on low-tech environments, arguing that without

addressing the structural deficits of the SME ecosystem, EFRIS may be driving businesses deeper into informality rather than bringing them into the formal fold. By examining this, the study contributes to the critical discourse on “Digital Justice” in public administration.

1.1 Problem Statement

Globally, digital tax administration is considered a highly effective method for reducing the tax gap (Farounbi et al., 2020; Nose et al., 2025). In Uganda, the EFRIS platform enables the tax authority to monitor VAT transactions between firms to reduce evasion (Almunia et al., 2021). However, preliminary reports from the field suggest a crisis of adaptation within the SME sector. While the intention of EFRIS is to streamline compliance, the outcome in Rubaga Division appears to be increased operational chaos and hostility toward tax authorities. The problem is that the “one-size-fits-all” digital approach fails to account for the heterogeneity of the SME sector, which includes both tech-savvy retailers and semi-literate market vendors (Opiso et al., 2023).

Past studies have largely focused on the potential benefits of digital taxation or the economic determinants of compliance (Anggraeni, 2024). There is a significant research gap regarding the sociotechnical dynamics of implementation: specifically, how the interaction between human behavior and flawed technological infrastructure generates non-compliance (Jakobsen et al., 2023). Existing literature has not adequately addressed the phenomenon of “digital resistance,” where tax avoidance becomes a form of protest against inaccessible technology (Talwar et al., 2020). Furthermore, the perspectives of tax officials, who act as the frontline implementers of these often-frustrating systems, are largely absent from the narrative (Beach, 2018). This research is therefore critical to understanding why the “digital fix” is faltering in Rubaga and what can be done to bridge the widening gap between tax policy and technological reality.

1.2 Purpose of the Paper

The purpose of this study is to analyze the sociotechnical challenges and implementation friction associated with the digitalization of tax administration among SMEs in Rubaga Division, with a specific focus on the efficacy and acceptance of EFRIS.

1.3 Research Objectives

The following specific objectives guided this study:

- 1) To assess the digital readiness and technological capacity of SMEs in Rubaga Division to adopt EFRIS.
- 2) To examine the operational disruptions and financial burdens imposed by digital tax administration on SME operations.
- 3) To investigate the adaptive strategies and challenges faced by tax officials in enforcing digital compliance.

1.4 Research Questions

This study sought to answer the following questions:

- 1) How does the digital readiness of SMEs in Rubaga Division influence their acceptance and utilization of EFRIS?
- 2) In what ways has the implementation of EFRIS disrupted the operational and financial workflows of SMEs?
- 3) How do tax officials navigate the technical and practical challenges of enforcing digital tax compliance?

1.5 Significance of the Study

- 1) **Academics:** This study contributes to the field of Information Systems and Public Administration by applying the Technology Acceptance Model (TAM) to the tax sector in a developing country. It offers a critical counter-narrative to the techno-optimism prevalent in much of the e-governance literature.
- 2) **Practitioners/Industry:** The findings are crucial for SME owners and business associations as they highlight the specific “pain points” of digital compliance. These findings provide a basis for advocacy for more appropriate, tiered digital solutions that align with the capacity of small businesses.
- 3) **Policy Makers:** The study offers vital feedback to the URA and Ministry of ICT regarding the rollout of digital services. It underscores the need for “Digital Inclusion Policies” that subsidize infrastructure and training before mandating high-compliance digital tools.
- 4) **Society:** By highlighting the exclusionary nature of current digital tax strategies,

the study advocates for a more equitable tax system. It benefits society by promoting a model of governance that sees technology as an enabler rather than a weapon, fostering a more cooperative relationship between the state and the entrepreneurial class.

1.6 Scope of the Study

- 1) **Location:** The study was conducted in Rubaga Division, Kampala, targeting high-density commercial zones including Nateete, Busega, and Ndeeba.
- 2) **Population:** The study population included SME owners who are registered users of EFRIS and URA officials responsible for digital tax enforcement in the division.
- 3) **Variables:** Independent variables included Digital Literacy, Infrastructure Stability, and System Usability. The dependent variable was Tax Compliance Efficiency.
- 4) **Timeframe:** The study focused on the period from 2021 to 2025, during the implementation of EFRIS.
- 5) **Limitations:** The study was limited by the rapidly changing nature of the EFRIS software (updates and patches), which may have altered user experiences during the data collection period. Furthermore, the self-reported nature of digital literacy may be subject to bias.

1.7 Theorization / Theory of the Study

This study is grounded in two complementary theories: The Slippery Slope Framework (SSF) and the Technology Acceptance Model (TAM). The Slippery Slope Framework (Kirchler et al., 2008) posits that compliance is a function of "Power" and "Trust." In the context of digital taxation, EFRIS represents a massive increase in the state's "Power" of surveillance and audit capability. However, the Technology Acceptance Model (TAM) (Davis, 1989) provides the necessary lens to understand the user side. TAM suggests that user acceptance of technology is determined by two main factors: Perceived Usefulness (the degree to which a person believes that using a particular system would enhance their job performance) and Perceived Ease of Use (the degree to which a person believes that using a particular system would require little effort).

The integration of these theories provides a

robust theoretical framework for this study. SSF explains the authority's motivation (enforcement power), while TAM explains the taxpayers' reaction (acceptance or resistance). The study argues that EFRIS is facing resistance because, in the context of Rubaga SMEs, the "Perceived Ease of Use" is critically low due to poor infrastructure and high complexity, and the "Perceived Usefulness" is negated by the high costs of compliance. Consequently, the increase in state "Power" is not leading to "Voluntary Compliance" but rather to "Enforced Resistance," creating a paradox where technology hinders rather than helps revenue collection.

2. Literature Review

Variable 1: Digital Readiness and Technological Capacity

The concept of digital readiness extends beyond mere ownership of a smartphone; it encompasses the infrastructure, connectivity, and skills necessary to effectively engage with digital platforms (OECD, 2020). Literature on the digital divide in Sub-Saharan Africa indicates that while mobile penetration is high, reliable internet access for real-time transaction processing remains a challenge, particularly for micro-enterprises (Cariolle & Carroll, 2020; Girollet, 2023). Studies on e-taxation in developing countries emphasize that digital literacy is a prerequisite for successful tax digitalization, with research in Malaysia highlighting lack of digital literacy as a key issue for effective implementation (Kamarudin et al., 2024). In the Ugandan context, EFRIS requires consistent data connectivity to issue receipts, yet research suggests that the instability of the national power grid and the cost of mobile data in urban trading centers act as de facto barriers to entry (Alinaitwe, 2023; Kituyi et al., 2024). A gap exists in understanding how these infrastructural deficits specifically affect the daily operational rhythms of businesses in high-density areas like Rubaga, where "offline" trade is the norm.

Variable 2: Operational Disruption and Financial Burden

The implementation of new tax technologies often imposes a "transition cost" on businesses. According to Transaction Cost Economics, any shift in the regulatory environment increases the costs of compliance until adaptation occurs (Williamson, 1981). In the context of SMEs, these costs are disproportionately high (Li et al., 2023).

Literature argues that SMEs lack the slack resources to absorb the shock of new administrative requirements (Lampadarios et al., 2017). The literature specifically on EFRIS in Uganda points to the “cost of compliance” including the purchase of Electronic Fiscal Devices (EFDs), monthly data subscriptions, and the time lost during system outages (Amos et al., 2024). There is limited research, however, that qualitatively maps these costs to the survival strategies of SMEs, how they tradeoff between paying for data and buying stock, or how system downtime forces them to lose customers.

Variable 3: Adaptive Strategies of Tax Officials

While tax officials are the agents of the state, they are also users of the digital system. Literature on “street-level bureaucracy” (Lipsky, 2010) suggests that frontline officials often develop informal workarounds to cope with the rigidity of technology. In the tax context, this can mean reverting to manual assessments when the system fails or using personal discretion to avoid penalizing taxpayers for system errors. There is a significant gap in understanding how URA officials in Rubaga mediate the “algorithmic authority” of EFRIS with the “human reality” of the market, and how these adaptive strategies impact the overall consistency of tax enforcement.

3. Methodology

The study adopted a qualitative research approach, utilizing an exploratory case study design. This design was chosen to gain a deep, contextualized understanding of the “implementation friction” of EFRIS, which quantitative metrics alone could not capture.

Population and Sampling: The study population comprised SME owners in the trade and service sectors within Rubaga Division and URA officials attached to the division’s domestic tax offices. Purposive sampling was employed to select 35 participants: 25 SME owners who had been using EFRIS for at least one year, and 10 tax officials involved in EFRIS enforcement and support.

Data Collection: Data were collected through in-depth semi-structured interviews and direct observation of EFRIS usage in business premises (where permitted). The interview guides for SMEs focused on ease of use, cost implications, and system reliability. For officials, the guide focused on system challenges, enforcement difficulties, and taxpayer feedback.

Data Analysis: The study used Thematic Analysis. Transcripts were coded manually and with NVivo software to identify recurring patterns. Key themes such as “System Failure,” “Cost Burden,” and “Negotiated Compliance” were developed and interpreted using the Technology Acceptance Model (TAM) (McCord, 2011; Gustafsson, 2017).

Table 1. Distribution of Study Respondents

Category	N	Sampling Criteria	Instrument Used
SME Owners (Retail/Service)	25	EFRIS registered, operating > 2 years	Semi-structured Interview
URA Tax Officials	10	Enforcement and Audit officers in Rubaga	Semi-structured Interview
Total	35		

Explanation of Table 1:

The table illustrates the distribution of the 35 key informants. The 25 SME owners provided the user perspective on EFRIS, highlighting usability and cost barriers. The 10 tax officials provided the administrator’s perspective, offering insights into system limitations and enforcement adaptations. This dual-sampling ensured a holistic view of the digital tax ecosystem.

4. Interview Findings

Finding 1: The “Perceived Ease of Use” Gap

The study found that the “Perceived Ease of Use” of EFRIS was critically low among SMEs in Rubaga. A major finding was the impact of infrastructural deficits on system usability. Many respondents reported that EFRIS was incompatible with the unstable power and internet supply in the area. One hardware shop owner in Busega lamented,

“When electricity goes off, my business stops. EFRIS requires the internet to issue a receipt. If the network is down, I cannot sell. The system is not designed for

our reality.”

Furthermore, the user interface was described as complex, requiring multiple steps to issue a single receipt, which discouraged consistent use, especially during peak hours.

This finding validates the Technology Acceptance Model (TAM) (Nooruddin et al., 2022). The low “Perceived Ease of Use” acts as a primary barrier to adoption and compliance (Nooruddin et al., 2022). It highlights a misalignment between the high-tech design of EFRIS and the low-tech infrastructure environment of Rubaga. The system assumes constant connectivity and power, assumptions that do not hold in the context of an urban developing economy, leading to “technological friction” that disrupts commerce.

Finding 2: Financial and Operational Disruptions

The study revealed that EFRIS imposes significant financial burdens that outweigh the perceived benefits. SME owners cited the high cost of Electronic Fiscal Devices (EFDs) and the recurring cost of mobile data dedicated solely to tax compliance. Additionally, the operational disruption was evident in the form of lost customers. Some customers in Nateete market refused to wait for the slow digital receipting process, opting to buy from vendors who issued manual receipts or none at all. A restaurant owner noted,

“I used to have 50 lunch customers; now I have 30 because they don’t want to wait for the EFRIS receipt to print. I am losing revenue just to comply.”

This indicates that EFRIS has introduced a “regressive compliance cost” (Lignier et al., 2014). The financial and operational burdens are felt more acutely by small businesses with thin margins (Lignier et al., 2014). This supports the literature on “tax compliance as a burden” (Lignier et al., 2014), suggesting that when the cost of compliance (time, money, lost sales) becomes too high, rational economic actors will seek ways to circumvent the system (Bandara & Weerasooriya, 2019), thereby defeating the policy’s purpose.

Finding 3: Official Workarounds and Enforcement Fatigue

From the perspective of tax officials, the study found that EFRIS has created “enforcement fatigue.” Officials reported that they spend a significant amount of time troubleshooting

technical issues for SMEs rather than auditing tax compliance. They also admitted to overlooking to non-compliance when system failures were evident. One official confessed,

“If the network is down, I cannot punish a trader for not issuing an EFRIS receipt. We have unofficially allowed manual receipts when the system fails, but this confuses the taxpayers.” This has led to inconsistent enforcement.

This finding illustrates the “Street-Level Bureaucracy” phenomenon. Frontline officials are forced to improvise and create “workarounds” to make the rigid system function in the real world. The existence of these unofficial adaptations undermines the authority and standardization that EFRIS was supposed to provide. It creates a gray area where compliance is negotiable based on the status of the network, weakening the “Power” dimension of the Slippery Slope Framework.

5. Discussion

Discussion of Objective 1: Digital Readiness and Acceptance

The findings on the low “Perceived Ease of Use” due to infrastructure deficits resonate with global discussions on the digital divide in taxation (Okunogbe & Santoro, 2022). The study confirms the assertion by Davis (1989) and Abdullah & Ward (2015) that external variables, such as infrastructure, directly influence the user’s perception of a technology. In Rubaga, the lack of reliable electricity and internet is not just an inconvenience; it is a fatal flaw in the system design that negates the “Perceived Usefulness” of EFRIS. This aligns with Okunogbe et al. (2022) who highlight limitations of information technology for tax mobilization arising from inadequate infrastructure and connectivity. The SMEs’ resistance is not necessarily a refusal to pay tax, but a refusal to use a tool that hampers their business viability. This challenges the technocratic assumption that digitalization is a universal solution, suggesting instead that context-specific infrastructure support is a prerequisite for successful digital tax adoption (Ofori et al., 2022; Opiso et al., 2023).

Discussion of Objective 2: Operational Disruptions

The financial and operational disruptions reported by SMEs, loss of customers due to slow receipting and high data costs, reflect transaction cost theory. The study demonstrates that the cost

of compliance is not static; it increases when the tax system is inefficient. This is consistent with Coolidge (2012), who found that SMEs bear a disproportionate compliance burden. The “regressive” nature of EFRIS is highlighted here; large businesses can absorb the cost of dedicated IT support and generators, but a small trader in Rubaga cannot. The finding that customers walk away rather than wait for digital receipts is particularly significant; it shows that the tax system is altering market dynamics, penalizing compliant businesses. This creates a perverse incentive where compliance leads to reduced competitiveness, supporting the need for “tiered” or simplified digital solutions for micro-enterprises (Tran-Nam & Evans, 2014; Amos et al., 2024).

Discussion of Objective 3: Official Workarounds

The adaptive strategies of tax officials, specifically the tolerance of manual receipts during outages, reveal the limitations of “algorithmic governance.” While EFRIS was designed to remove human discretion, the study shows that human discretion is still essential to make the system function. This supports Lipsky’s (2010) theory of street-level bureaucracy, where policy is ultimately shaped by those who implement it. The officials’ “enforcement fatigue” and subsequent informal leniency suggest that the state’s “power” is blunted when the technology fails. This creates a paradox: the tool designed to strengthen enforcement actually creates ambiguity and inconsistency. This aligns with Fjeldstad and Heggstad (2012), who note that weak institutional capacity in implementing reforms often leads to informal practices. The study concludes that for EFRIS to be effective, it must be robust enough to minimize the need for human workarounds, or the legal framework must be flexible enough to account for technical realities.

6. Conclusion and Recommendations

Conclusion: This study set out to analyze the implementation friction of EFRIS among SMEs in Rubaga Division, Kampala. Applying the Technology Acceptance Model and the Slippery Slope Framework, the study concludes that the digitalization of tax administration is currently encountering severe resistance due to a misalignment between system requirements and local context. The “Perceived Ease of Use” is critically undermined by infrastructural deficits

(power and internet), while the “Perceived Usefulness” is negated by high financial costs and customer disruption. Furthermore, the “Power” of the tax authority is compromised by system unreliability, forcing officials to adopt informal workarounds that create enforcement inconsistency. Consequently, EFRIS, in its current form, is acting as a barrier to compliance rather than a facilitator, exacerbating the digital divide between the state and the small business sector.

Recommendations: Based on these findings, the following recommendations are made:

- 1) **To the URA (Technical):** Develop an “Offline Mode” for EFRIS that allows SMEs to queue transactions and sync automatically when connectivity is restored, thereby removing the operational barrier of network failure.
- 1) **To the Government (Infrastructure):** Implement a “Tax Infrastructure Subsidy” for SMEs, potentially in the form of tax deductions for the purchase of data bundles or solar power systems used exclusively for tax compliance.
- 2) **To Policy Makers (Regulatory):** Introduce a tiered compliance system where micro-enterprises (below a certain turnover) can use simplified, USSD-based receipting methods rather than requiring expensive hardware, ensuring the digital solution fits the scale of the business.
- 3) **To URA Training:** Retrain tax officials not just as auditors, but as “Digital Support Officers” whose key performance indicators (KPIs) include helping SMEs resolve technical issues, thereby rebuilding trust and reducing the reliance on informal workarounds.
- 4) **To Stakeholders:** Establish a “SME Digital Tax Forum” in Rubaga to allow continuous feedback loops between the URA developers and the end-users, ensuring that future software updates address the real-world friction points identified in this study.

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