EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 5||Issue 4||pp 68-78||August||2025
Email: info@edinburgjournals.org||ISSN: 2789-0201

Effect of Perceived Ease of Use on Electronic Tax Invoice Management System Adoption among Pharmaceutical Retail Enterprises in Starehe Sub-County, Nairobi, Kenya

Simon Kibathi Njoroge[1*], Dr. Bernard Baimwera[2], Dr. Jacob Yego[3]
[1,2]Tax Administration, Kenya School of Revenue Administration
[3]School of Business and Economics, Moi University
Corresponding Author Email: skibathin@gmail.com

Accepted: 28 June 2025 || Published: 27 August 2025

Abstract

Governments across the world have implemented electronic tax invoice management systems to improve tax compliance, especially Value Added Tax. The general objective was to determine the effect of perceived ease of use (PEOU) on electronic tax invoice management system adoption among pharmaceutical retail enterprises in Starehe Sub-County, Nairobi, Kenya. The study was anchored on the Technological, Organizational, and Environmental (TOE) framework and the Technology Acceptance Model (TAM). The study employed an explanatory research design. The study utilized primary data using structured questionnaires. A pilot study was conducted in Thika town to test the reliability and validity of the research instrument. The target population was 261 licensed pharmaceutical retail enterprises in Starehe Sub-County, Nairobi, Kenya. The study showed that out of 261 questionnaires administered, 211 were properly filled out and returned, which represents 81% response rate. The study found that perceived ease of use has a positive and significant effect on eTIMS adoption ($\beta = 0.411$, $p = 0.000$). The KRA could enhance adoption rates by simplifying user interfaces and providing multilingual support to improve perceived ease of use. Future studies could examine the effect of regulatory enforcement intensity and mobile technology integration in enhancing eTIMS adoption.

Keywords: *Perceived Ease of Use (PEOU), Electronic Tax Invoice Management System Adoption and Pharmaceutical Retail Enterprises.*

How to Cite: Njoroge, S. K., Baimwera, B., & Yego, J. (2025). Effect of Perceived Ease of Use on Electronic Tax Invoice Management System Adoption among Pharmaceutical Retail Enterprises in Starehe Sub-County, Nairobi, Kenya. *Journal of Finance and Accounting, 5*(4), 68-78.

1. Introduction

The main source of public revenue for most governments around the world is taxes. Taxes are compulsory unrequited payments to the general government or a supranational authority without expectation of a direct, commensurate, or proportional return to the taxpayer (OECD, 2021). The taxes collected are used to finance investment in human capital, infrastructure, and provision of public goods and services, as well as set the right price for private sector investment (World Bank, 2024).

An electronic tax invoice management system is a component of e-government that tax authorities worldwide have adopted in order to improve transactional data interchange between private enterprises and the state through integrated systems for real-time visibility of transactions, validation, and reconciliation (Qi & Azmi, 2021). The ultimate goal of adopting the system is to enhance tax compliance through tapping into nascent tax revenue avenues while sealing emerging tax evasion loopholes. An electronic tax invoice management system is one of the most efficient and transparent instruments for tax administration that strengthens the inspection of tax declarations, tax payments, and tax refunds (Nguyen et al., 2020).

In Kenya, the tax agency Kenya Revenue Authority (KRA) rolled out the Electronic Tax Registers (ETR) system of VAT administration in 2005. Every business registered for VAT was required to acquire an ETR from KRA through which all sales were to be registered. However, the tax agency had no way of knowing whether indeed all sales were being passed through the registers, thus creating a loophole for traders to declare sales at their discretion, leading to VAT fraud. iTax system was launched in 2014, with mandatory onboarding for individuals and enterprises beginning in 2015. The system is a web-based platform specifically developed for managing Domestic Taxes through the automation of services. It enables users to perform various tax-related processes, such as PIN registration, filing tax returns, facilitating payment of taxes, and applying for tax compliance certificates. By 2024, there were over 8 million active taxpayers registered on the iTax platform (KRA, 2025). However, tax collection remained perennially below target, forcing the government to augment iTax with an electronic tax invoice management system.

Perceived Ease of Use (PEOU) refers to the degree to which a person believes that using a particular system or technology will be free of effort. This concept is a core component of the Technology Acceptance Model (TAM) developed by Davis (1989), which explains user acceptance of information systems. According to the model, if a system is perceived to be easier to use, individuals are more likely to adopt and use it. PEOU influences user attitude and behavioral intention toward using technology, often alongside Perceived Usefulness (PU).

1.1 Problem Statement

Tax Invoice Management System (TIMS) was implemented in August 2022 in Kenya to ensure all businesses issued valid tax invoices. All VAT-registered taxpayers were obliged to acquire TIMS devices, which integrated with the iTax platform. In 2023, KRA introduced a web-based software solution called the Electronic Tax Invoice Management System (eTIMS) aimed at ensuring overall tax compliance for all enterprises, whether registered for VAT or not. However, only 120,000 registered income-earning taxpayers had complied and adopted the system by June 2024, the end of the financial year 2023/2024.

The adoption level represented a paltry 18.1 percent of the targeted firms, estimated at 663,000, translating to 81.9 percent non-adoption, equivalent to 543,000 firms. As of September 2024, only 323,120 enterprises had adopted e-invoicing (KRA, 2024). This state of affairs necessitated the present study, seeking to establish the determinants of electronic tax invoice management system adoption among pharmaceutical retail enterprises in Starehe Subcounty, Nairobi, as a representative segment of MSMEs in Kenya.

2. Literature Review

2.1 Theoretical Review

2.1.1 Technological, organizational, and environmental (TOE) framework

The technological, organizational, and environmental (TOE) framework was developed by Tornatzky and Fleischer in 1990. TOE serves as a crucial theoretical perspective for evaluating the contextual factors in technology adoption (Lin, 2014). It is a useful perspective for looking at innovation adoptions and has been widely used in various empirical studies to examine the adoption of a variety of innovations, such as electronic data interchange (EDI). According to TOE, technological, organizational, and environmental contexts influence innovation or technology adoption.

Technological context is the adopter's perception of existing and new technologies. The organizational context refers to the organization's descriptive characteristics, including managerial structure, complexity, quality, and degree of its human resources, scope, and size of the firm. The external environmental context refers to the ecosystem within which the organization undertakes its business, including the industry and dealings with trading partners, competitors, regulations, and the government (Lin, 2014). The TOE framework is effective for understanding technology adoption, its implementation, its foreseeable challenges, and its impact on value chain activities and business innovation adoption decisions for better organizational capabilities (Lin and Lin, 2008).

Electronic invoicing adoption is faced with a myriad of uncertainties that entrepreneurs face. The knowledge of IT investments and the process changes they bring along may not be fully understood. The network itself is critical, as the innovation is useless unless the parties of the network also adopt it. An IT innovation may be considered difficult if the know-how is minimal. A common problem is how to speed up the diffusion rate of an interactive IT innovation (Edelman and Sintonen, 2006). SMEs face great challenges in the adoption of new technologies or innovations, such as high market and technology risk and inaccurate knowledge about contingent events, leading to decision-making under uncertainty (Balasubramanian et al., 2000). Martins et al. (2019) found that top management support and normative pressures have a significant influence on Software as a Service (SaaS) adoption, and the perceived opportunities were a negative moderator on the relationship between SaaS adoption and continued use intention.

2.1.2 The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), which was developed by Davis (1986), is one of the most widely used research models in studying the determinants of information technology (IT) usage and has been applied extensively to evaluate user acceptance of information technologies, including e-invoicing. The model postulates that IT acceptance is determined by a person's perceived usefulness (PU), perceived ease of use (PEU), and attitude towards adopting a specific technology, following the thread of belief–intention–behavior. Perceived usefulness reflects the belief of a person that their productivity will be enhanced when adopting a specific information technology (Davis, Bagozzi & Warshaw, 1989).

The model defines perceived ease-of-use as the perception of a person that using a particular technology will be effortless. According to TAM, an individual's behavior of adopting a given technology is determined by their intention. Individuals tend to form the intention to behave

when they think the behavior is useful or can enhance their performance, and when they hold positive attitudes. In other words, behavior is deemed to be determined by attitudes and PU. Furthermore, TAM presumes that PU has a positive effect on attitudes as well, and likewise, this relationship can be applied to that of PEU on attitudes.

As users perceive the technology to be easy to use, it is expected to save effort and to improve their performance. PEU is considered to have a direct effect on PU, moderated by external variables such as training and user support, which impact PEU and, in turn, affect the actual adoption. Governmental intervention is brought into consideration in that by targeting companies that do business with it first, it can help create a ripple effect among suppliers to adopt e-invoice (Davis et al., 1989). TAM was, however, developed in the setting of IS usage within organizational boundaries, where the availability of technological resources, training, IS experience, and the expertise of users are homogenous to some extent; whereas, in a tax invoice management system setting, not everyone has an equal opportunity or adequate expertise to adopt the system.

2.2 Empirical Review

2.2.1 Perceived Ease of Use

This is defined as the degree to which the firm can effortlessly use an ICT. This factor has an inverse relation with the concept of complexity proposed by Rogers (2003). The adoption of a complex ICT requires greater operational efforts and technological abilities (Kim & Shin, 2009; Tan & Teo, 2000). According to the European Commission (2009), e-invoicing needs to be easy to implement, use, and maintain.

Chuensumon Bunnag et al. (2023) studied entrepreneurs in Thailand's Bangkok Revenue Office Area 21 and found that PEOU was the most significant factor influencing the acceptance of the e-Tax Invoice & e-Receipt system. The research indicated that medium-sized enterprises with over 10 years of operation demonstrated higher acceptance levels. The study employed multiple regression analysis and found that PEOU, along with social influence and perceived benefits, could predict system acceptance with 71% accuracy.

Qi and Che Azmi (2021) examined factors affecting electronic invoice adoption and its impact on tax compliance efficiency. The authors found that perceived benefits and trust in e-government positively influenced adoption. While PEOU was not the primary focus, the study implies that ease of use contributes to the overall efficiency of tax compliance processes

2.2.2 Electronic Tax Invoice Management System Adoption

An electronic tax invoice management system is an information software service that is used to collect transaction information and transfer that information via the internet. Governments across the world have adopted the system to improve transaction efficiency with private enterprises through digital information capture, automated validation, and reconciliation (Qi & Azmi, 2021). Electronic tax invoice management system improves taxpayer service and compliance while bringing down administrative costs (Awasthi et al., 2019). Adoption is also referred to as acceptance, and it is defined as the potential user's predisposition toward personally using a specific system. A strong causal link exists between behavioral intention and targeted behavior (Fu et al., 2006).

The precursor of electronic invoicing was EDIFACT (Electronic Data Interchange for Administration, Commerce, and Transport), which was used by large organizations as a

mechanism for transmitting invoice data in the early 1970s. However, these systems were point-to-point, which required substantial investments in setting up connections between the parties involved (Penttinen & Hyytiainen, 2008). Initially, the private sector was the key driver; however, due to the need to have an efficient tax system, governments have taken measures to implement e-invoicing (Koch, 2017).

Adoption rate for e-invoicing has been low, especially among SMEs, as a result of a myriad of challenges encountered by prospective adopters despite the various benefits. Among the barriers that prohibit e-invoicing adoption are high investment and integration costs (Sandberg et al., 2009). Limited capital allocation and lack of internal sponsorship are the main hindrances to the adoption of e-invoicing (Fairchild, 2004). Lack of demand in the environment, perceived uncertainty, low level of awareness, and buyer fragmentation are the main reasons for e-invoicing non-compliance among SMEs (Edelman & Sintonen, 2006).

2.3 Conceptual Framework

A conceptual framework shows different variables based on hypothesized interactions. (Cooper & Schindler, 2014). Different types of variables form the basis of a study. The independent variables are those factors that influence others, while the variable influenced is known as the dependent variable. The independent variable was perceived ease of use, while the dependent variable was the electronic tax invoice management system adoption. As indicated in Figure 1.

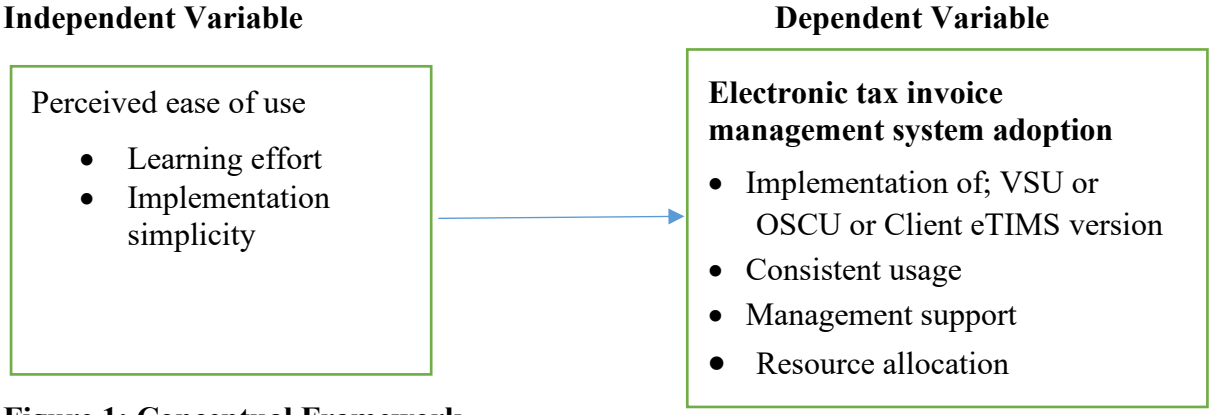

Figure 1: Conceptual Framework

3. Methodology

A research design is a comprehensive outline or plan of how a study is conducted. It gives the researcher the ability to evaluate the association between variables without interfering with them (Kothari, 2006). The present study adopted an explanatory research design in order to appropriately comprehend the phenomena under investigation. The target population was 261 licensed pharmaceutical retail enterprises in Starehe Subcounty, Nairobi, Kenya, according to records sourced from PPB (2025). The census survey method was employed to identify and include all 261 licensed pharmaceutical retail enterprises listed in the Pharmacy and Poisons Board (PPB) 2025 registry for Starehe Subcounty, Nairobi, Kenya. Table 1 shows that out of 261 questionnaires administered, 211 were properly filled and returned, which represents 81% response rate.

Table 1: Response Rate

	Number	%
Response Rate	211	81.0%
Non-Response	50	19.0%
Number of Issued questionnaires	261	

Reliability Test

Table 2 showed perceived ease of use achieved a high reliability of 0.857, confirming that its three items reliably assessed the construct. These results suggest that all scales used in the questionnaire were psychometrically sound for measuring their intended constructs. The construct electronic tax invoice management system adoption demonstrated high reliability of 0.847, suggesting that the three items measuring this construct were internally consistent.

Table 2: Test of Reliability of Questionnaire

Factor	Number of Items	Cronbach Alpha score	Conclusion
Electronic tax invoice management system adoption	3	0.847	Reliable
Perceived ease of use	3	0.857	Reliable

Data analysis begins immediately after data collection and ends with the interpretation and processing. Data analysis involves reducing accumulated data to a manageable size, developing summaries, looking for patterns, applying statistical techniques, and statistically evaluating the hypotheses (Cooper & Schindler, 2014). Analysis of data was done using descriptive statistics, frequencies, and percentages. Further, correlations were computed to check the relationship between the independent variable and the dependent variable.

4. Results and Discussion

4.1 Descriptive statistics for Perceived ease of use

Table 3 shows that "Learning to use eTIMS requires minimal time and effort" received a mean score of 4.02 (SD = 0.703). The item "The eTIMS system's interface is intuitive and easy to navigate without extensive training" received a mean score of 4.03 (SD = 0.847). The item "Integrating eTIMS into existing workflows is straightforward and uncomplicated" received a mean score of 3.95 (SD = 0.777).

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 5||Issue 4||pp 68-78||August||2025
Email: info@edinburgjournals.org||ISSN: 2789-0201

Table 3: Perceived ease of use

Statements	N	Mean	SD
Learning to use eTIMS requires minimal time and effort	211	4.02	0.703
The eTIMS system's interface is intuitive and easy to navigate without extensive training		4.03	0.847
Integrating eTIMS into existing workflows is straightforward and uncomplicated		3.95	0.777

4.2 Descriptive statistics for Electronic Tax Invoice Management System Adoption

Table 4 **s**hows that the item " eTIMS consistently produces accurate tax calculations" received a mean score of 3.98 (SD = 0.740). The statement "Tax compliance outcomes from eTIMS are reliable and error-free" received a mean score of 4.09 (SD = 0.595). The item "I am satisfied with eTIMS as a tax management solution" obtained a mean score of 3.88 (SD = 0.739).

Table 4: Electronic Tax Invoice Management System Adoption

Statements	N	Mean	SD
eTIMS consistently produces accurate tax calculations	211	3.98	0.740
Tax compliance outcomes from eTIMS are reliable and error-free		4.09	0.595
I am satisfied with eTIMS as a tax management solution.		3.88	0.739

4.3 Correlation Analysis

Table 5 presents the correlation coefficient between the predictor variable and the outcome variable, electronic tax invoice management system adoption, along with the respective significance levels. The results indicate that perceived ease of use has a positive and significant correlation with electronic tax invoice management system adoption, r = 0.707. This suggests that a higher level of perceived ease of use is associated with increased electronic tax invoice management system adoption.

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 5||Issue 4||pp 68-78||August||2025
Email: info@edinburgjournals.org||ISSN: 2789-0201

Table 5: Correlations Statistics

	Electronic tax invoice management system adoption	Perceived ease of use
Electronic tax invoice management system adoption	1	0.707**
Perceived ease of use	0.707**	1

**. Correlation is significant at the 0.05 level (2-tailed).

4.4 Regression Analysis

Regression analysis was used to determine the effects of the predictor variable of the study on the outcome variable. Table 6 showed that perceived ease of use caused a variation of 49.9% or (R^2=0.499 and adjusted R^2 =0.492) on electronic tax invoice management system adoption.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.707[a]	0.499	.492	.31783

[a]. Predictor: (Constant), Perceived ease of use _mean

Table 7 shows that there was an F statistic of 375.447 and a p-value of 0.000<0.05, which indicates that the model was significant in explaining electronic tax invoice management system adoption.

Table 7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.689	1	53.689	375.447	.000
	Residual	29.975	209	.143		
	Total	83.664	210			

Dependent Variable: Electronic tax invoice management system adoption

Predictor: (Constant), Perceived ease of use

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 5||Issue 4||pp 68-78||August||2025
Email: info@edinburgjournals.org||ISSN: 2789-0201

Table 8 shows that a unit change in perceived ease of use caused a 0.411 increase in electronic tax invoice management system adoption. The study found that perceived ease of use had a positive and significant effect on electronic tax invoice management system adoption, β =0.411, p-value =0.000<0.05. The null hypothesis (H_0) "Perceived ease of use has no significant effect on eTIMS adoption" was rejected.

Table 8: Regression Coefficient analysis

	Standardized		Unstandardized		
Variable	β	Std. Error	β	t-statistic	Prob.
Constant	0.360	0.174		2.069	0.040
Perceived ease of use	0.411	0.062	271	6.629	0.000

4.5 Discussion of the Findings

The study sought to determine the effect of perceived ease of use (PEOU) on electronic tax invoice management system adoption. The correlation analysis discovered that there is a positive and significant correlation between perceived ease of use and eTIMS adoption (r = 0.707). The study also found that perceived ease of use has a positive and significant effect on eTIMS adoption (β = 0.411, p = 0.000). This finding further indicates that user-friendly system design is particularly crucial for adoption. The study, in congruence with the findings, Chuensumon Bunnag et al. (2023), identified PEOU as the most significant factor in e-tax system acceptance, particularly among medium-sized enterprises.

5. Conclusion

The study concludes that perceived ease of use (PEOU) affects electronic tax invoice management system adoption among pharmaceutical retail enterprises in Starehe Sub-County, Nairobi, Kenya. The study also concludes that system complexity presents the most substantial adoption barrier, with user experience outweighing other factors. This finding contributes new knowledge about mandatory systems design priorities, suggesting that usability requirements differ fundamentally from voluntary technologies.

6. Recommendations

Based on the findings, the KRA could enhance adoption rates by simplifying user interfaces and providing multilingual support to improve perceived ease of use. Future studies could examine the effect of regulatory enforcement intensity, sensitization, and mobile technology integration in enhancing eTIMS adoption, as well as the effect of eTIMS adoption on tax compliance and tax collection.

References

Awasthi, R., Lee, H. C., Poulin, P., Choi, J. G., Kim, W. C., Lee, O. J., & Chang, S. Y. (2019). The Benefits of Electronic Tax Administration in Developing Economies: A Korean Case Study and Discussion of Key Challenges. *World Bank*.

Balasubramanian, P., Kulatilaka, N. and Storck, J. (2000) 'Managing information technology investments using a real-options approach', *Journal of Strategic Information Systems*, 9, 39–62.

Cooper, W. & Schindler, D. (2003) Approaches to Social Research. New York: Oxford University Press. Coppel, J. (2010). E-Commerce: Impacts and Policy Challenges, Economics Department. Working Paper No. 252. Organization of Economic Cooperation and Development (OECD).

Davis, F. D. (2019). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340.

Edelmann, J., & Sintonen, S. (2006). Adoption of electronic invoicing in Finnish SMEs: two complementary perspectives. *International Journal of Enterprise Network Management*, 1(1), 79-98.

Fu, J. R., Chao, W. P., & Farn, C. K. (2004). Determinants of taxpayers' adoption of electronic filing methods in Taiwan: An exploratory study. *Journal of government information*, 30(5-6), 658-683.

Kim, H.B., Kim, T., & Shin, S.W. (2009). Modeling roles of subjective norms and eTrust in customers' acceptance of airline B2C eCommerce websites. *Tourism Management*, 30, 266-277

Koch, B. (2017). E-invoicing/E-billing. *.A significant market transaction lies ahead. Billentis*.

Kothari, C. R. (2004). Research methodology: Methods and techniques,2nd Revised Edition, New Age International Publishers, New Delhi.

KRA (2020). Tax Evasion-Edition. Retrieved from KRA https://www.kra.go.ke/en

KRA Seventh Corporate Plan (2018/19-2020/2021) Revenue mobilisation through transformation

Lani, J. (2011). Homoscedasticity. 1–2.

Lin, H. F. (2014). Understanding the determinants of electronic supply chain management system adoption: Using the technology-organisation-environment framework. *Technological Forecasting and Social Change*, 86, 80–92.

Martins, R., Oliveira, T., Thomas, M. and Tomas, S. (2019). Firms' continuance intention on SaaS use–an empirical study. *Information Technology and People*, 32 (1), 189-216.

Nguyen, A. H., Nguyen, T. P., & Dang, G. T. T. (2020). Determinants of E-invoice adoption: Empirical evidence from Vietnam. *The Journal of Asian Finance, Economics and Business*, 7(7), 311-321.

OECD (2019). Update on Voluntary Disclosure Programmes: A pathway to tax compliance. https://www.oecd.org/ctp/exchange-of-tax-information/update-on-voluntary-disclosure-programmes-a-pathwaypto-tax-compliance.html.

OECD (2022) Successful Tax Debt Management: Measuring Maturity and Supporting Change.http://www.oecd.org/tax/forum-on- tax-administration/publications-and-products/successful-tax-debt- management-measuring-maturity-and- supporting-change.pdf

Qi, Y., & Che Azmi, A. (2021). Factors affecting electronic invoice adoption and tax compliance process efficiency. *Transforming Government: People, Process and Policy*, 15(1), 150-168.

Rogers, E. M. (2003). Diffusion of innovations (5th ed). *UK: Free Press.*

World Bank (2021). Kenya's small and medium enterprises receive a 100 million pandemic recovery boost. https://www.worldbank.org/en/news/press-release/2021/12/08