WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal Homepage: www.ijrpr.com ISSN 2582-7421

Role of Regulatory Frameworks in Management of E-Commerce Challenges in Kenya: A Case of Huduma Centre Nakuru County

[1*] Kennedy Lugohe Lwenyi, [2] Isabella Sile *

[1]MBA Student: Management University of Africa * Email: lwenyil@gmail.com
[2]Management University of Africa, *Email: isile@mua.ac.ke

ABSTRACT

This research study assessed regulatory frameworks challenges faced in the e-commerce market at Huduma Centre, Nakuru County with: computer misuse and cybercrimes regulations and the Kenya information and communications regulations as study variables. The target population was 116 employees 90 respondents as a sample size. Structured questionnaire collected data which was analyzed through descriptive and inferential statistics analysis through SPSS version 30 and presented in tables. The study showed that regulatory issues moderately addressed e-commerce challenges, there was agreement. The mean values of the Computer Misuse and Cybercrimes Regulations were between 3.62 and 3.78, with standard deviations of 0.80 and 0.90, respectively and the mean of Kenya information and communication regulations were 3.65 – 3.88 and standard deviations of 0.75–0.88. The study found that regulatory frameworks are very important in solving e-commerce challenges at Huduma Centre, Nakuru County, but not all of them are effective because of gaps in implementation, infrastructural issues, and different institutional capacities. It was recommended that: Improve cybercrime enforcement capacity, Improve ICT infrastructure and Improve data protection compliance by audit and public awareness programmes. It went on to recommend better inter-agency coordination of regulatory institutions, to increase the overall effectiveness of e-commerce governance.

Key Words: *Regulatory Frameworks, Computer Misuse and Cybercrimes Regulations, Kenya Information and Communications Regulations*

INTRODUCTION

Background of the Study

The growth of technology and innovation has accelerated socio-economic development by transforming how individuals, businesses and institutions operate, communicate, and deliver services. Governments have embraced this digital trend to enhance service delivery (Giao, 2020). Accordingly, ICTs are essential for human progress and development. ICT has changed how people find information, connect, work, trade and interact with government authorities (Roztocki et al., 2019). Moreover, ICT innovations have significantly impacted private sector operations and government service delivery to citizens (Ude et al., 2021).

Globally, e-government services have progressed at different rates. Mukamurenzi and other scholars found out in 2019 that e-government development aligns with government advancements meaning that as technology and innovations continue to advance governments are equally evolving and embracing these innovations in their operations as a way of increasing their efficacy. Looking at the 2018 United Nations report, e-government development portrayed an upward trend, with 40 nations scoring very high on the e-government development index (EGDI). Equally the global average EGDI rose from 0.47 in 2014 to 0.55 in 2018 reflecting an overall upward trend in e-government initiatives across different regions. UNCTAD e-Commerce Digital Economy Report (2024) highlights the developing countries that have benefitted in terms of training and capacity building of policy makers, judicial staff, legislators and civil servants in charge of ICT and law reforms to develop legal and regulatory frameworks aimed at addressing challenges associated with e-Commerce particularly in Africa, Asia and Latin America. The main challenges identified for regulatory redress include mistrust of electronic transactions, conduct of local and international trade via online platforms, online cyber threats as well as data protection of users and providers of online based ecommerce services.

Similarly, organization has been assisting these countries in preparation, drafting and enactment of ecommerce enabling legal and regulatory frameworks that are harmonized at regional and international levels. Thus, ICT usage in government services has notably improved service quality in both developed countries and developing nations, contributing to socio-economic development (Bwalya, 2018). In India, e-government has facilitated good governance by enabling citizens to easily access and appreciates government services (Tyagi & Tyagi, 2017). Although the e-government services have advanced, developing countries still suffer from numerous problems in the delivery of these services. The United Nations (2020) report reveals the lagging status of ICT infrastructure, utilization, access and skills in Africa, and internet is only accessible to 36 percent of the population. These gaps hinder e-

government development and the continent's digital transformation. The government of every country is working for e-government, but many have limited resources, capacities, and digital infrastructure, particularly in developing countries (United Nations, 2020).

The United Nations (2018) report stresses that Government-led strategies are important in advancing the achievement of Sustainable Development Goals by policy coordination and sustainable development planning. Global perspectives on e-commerce development (Bwalya, 2018) require a grasp of the various features of e-commerce and specifically in developing contexts. Review of ecommerce services and improvement thereof are important for socio-economic development.

African governments have aimed to improve service delivery through e-government initiatives. Bwalya (2018) highlights that technology usage in delivery of public service enhances government service provision. E-government serves as a platform for transforming public administration, promoting interactive governance rather than merely offering services to the public. As e-government evolves, it adapts to new technologies to stay relevant and meet user expectations. The 2023 assessment conducted jointly by the World Bank, IMF, UNESCWA, OECD and WTO Ghana, Kenya, Algeria and Mauritania were found to be ecommerce ready in terms of having developed an ecommerce policy, strategy, plan or both. Majority of African countries were at the time of the assessment unprepared to fully embrace ecommerce in the conduct of local and international trade as well as in provision of citizen centric online services. Also the study found that the entire African continent contributed 1% of global exports of digitally deliverable services in 2022 as compared to Asia which contributed 27% while Europe contributed 51% of all global ecommerce.

In 2019, Kenya launched the Kenya Digital Economy Blueprint which recognized need for expanding internet connectivity. This would enable Kenyans to easily access digital services such as ecommerce and e-government. At the time President Uhuru Kenyatta issued a presidential directive that required all government agencies to offer services and receive payments on a digital platform. This is the directive that gave birth to the e-Citizen platform. In 2023, the incoming administration of President William Ruto launched the National e-Commerce strategy outlining six strategic areas key of which was ecommerce policy and regulatory framework.

Kenya Vision 2030 economic pillar aspires to mainstream ecommerce within the overall economy. The Kenya trade policy also underscores the usefulness of ecommerce in national development hence the government has put in place plans to digitize MSME productivity by reducing associated tariff and nontariff barriers within the bureaucracy. The BETA manifesto of the Ruto government has prioritized digital transformation whereby in order to realize the National e-Commerce Strategy, the government embarked on expanding internet connectivity in Kenya by extending the National Fibre Optic network from 9000KMs in 2022 to 100000KMs by 2025 as well as setting up of free WIFI hotspots in the country. All national and country government are already connected to the national fibre optic network which has seen the on boarding of more than 16000 online services on the e-Citizen Platform with Huduma centres serving as points of reference and physical liaison for the online services. It was envisaged that the strategy will make it easy for start-ups to make an unhindered market entry while MSMEs already in existence can enhance their participation in ecommerce. In 2022, the UNCTAD estimated a contribution of at least 7% to Kenya's GDP by the digital economy making it one of the top-performing digital economies in Africa.

Statement of the Problem

The delivery of public services in Kenya has been influenced by digital transformation more and more. The United Nations Conference on Trade and Development (UNCTAD, 2022) had mentioned that the country's digital infrastructure has been developed and it has online access to government services. The assessment also identified issues around electronic payment fraud, consumer protection, cybercrime and lack of understanding and application of the applicable law by the population. The problems are all signs of the need for effective regulatory implementation in the development of digital services to ensure the security of users and maintain the trust of electronic transactions.

The Government of Kenya has also remained committed to advocacy for integrated public service delivery both physically and virtually. According to Kenya Vision 2030 Delivery Secretariat (2023), 13.9 million customers used the Huduma Kenya channels (Huduma Centres, outreach, contact centre and social media platforms) across the reporting period of 2022/2023. This shows significance and scope of integrated service delivery model. However, the numbers of services provided does not indicate whether individual Huduma Centres are equipped to handle cyber security threats, consumer grievances, personal data protection and other issues related to digital transactions within the center. These are issues that can be explored at Huduma Centre in Nakuru County with the study focusing on how applicable regulatory frameworks can be practically applied.

Some legal instruments aid in the management of these challenges. The Computer Misuse and Cybercrimes Act, 2018, establishes a framework for dealing with computer-related offences, and the Kenya Information and Communications Act, 1998, as amended, deals with aspects of electronic communications. According to the Office of the Data Protection Commissioner (ODPC, 2022), the Data Protection Act and the 2021 regulations are key pieces of the data protection framework in Kenya. The existence of these laws, however, is not sufficient evidence of knowledge, implementation and effectiveness in tackling emerging problems associated with digitally-facilitated public services.

The main challenge in e-commerce being managed at Huduma Centre in Nakuru County is thus the lack of empirical evidence on role of regulatory frameworks. While UNCTAD (2022) reviewed Kenya's e-commerce ecosystem, recognizing the access and information gaps for consumers on e-services, UNCTAD's national assessment does not determine the impact of existing regulatory frameworks on the issues faced in this specific service delivery context. It is therefore still important to consider the part that computer misuse and Cybercrime laws can play in countering Cybercrime risks, the role communications regulation can play in securing Cyber Transactions, the role of consumer protection legislation in addressing Cyber Transactions concerns and the role of data protection legislation in protecting citizens' personal information. If there is no evidence of such an institution it is hard to

identify areas where implementation of regulation might need to be enhanced or suggestions for improved compliance and user protection would be offered.

The study thus aimed to investigate impact of regulatory frameworks on the management of e-commerce challenges in Huduma Centre, Nakuru County with emphasis on legislation against computer misuse and cybercrime, communications regulation, consumer protection and data protection legislation. The results will give relevant parties evidence to help them identify implementation gaps, increase regulatory compliance and enhance the security, reliability and accountability of digitally-enabled public service delivery.

Objectives of the Study

General Objective

To assess the role of regulatory frameworks in managing e-commerce challenges at Huduma Centre Nakuru County

Specific Objectives

i. To examine role of Computer Misuse and Cybercrimes Regulations in managing e-commerce challenges at Huduma Centre Nakuru.

ii. To assess influence of Kenya Information and Communications Regulations on e-commerce challenges at Huduma Centre Nakuru.

Significance of the Study

The study is anticipated to increase knowledge about role of regulatory framework in addressing challenges in e-commerce in Kenya with a specific focus on Huduma Centre in Nakuru County. The results will be useful for the industry, academia and policy makers, as there will be evidence on implementation of applicable regulatory frameworks, and parts of the delivery of digitally enabled public services that could be improved.

The institutions that are engaged in digital service delivery like Huduma Kenya, e-Citizen platform and any other institution that conducts electronic transaction will also benefit. Results could be useful for these institutions to pinpoint issues concerning cyber security, electronic communications, consumer protection and personal data protection. The research can also help uncover ways regulatory compliance, internal processes and customer support systems could be further enhanced to ensure the digital service is secure, reliable and accessible. Furthermore, the results can be used to guide formulation of suitable operational responses to customer complaints, safeguarding of personal data and cyber incidents. Such enhancements could help to boost public trust in digital payments and better access to services.

The study will enhance academic literature on how regulatory frameworks can be used to address e-commerce issues, especially in the integrated government service delivery in Kenya. The study will include contextual evidence that will be relevant to researchers and student studying computer misuse and cybercrime, communications regulation, consumer protection regulation and data protection regulation with information technology, public administration, business management and law and governance. The results will be a benchmark for any future analysis of regulatory compliance, digital trust, cyber security and consumer protection in public and private sector e-commerce settings. Moreover, the study can also identify areas of research which can be explored by other researchers in the other Huduma Centres, counties or institutions of digital service delivery.

The result of this study can help policy makers and regulatory bodies to determine the applicability of current legislative and regulatory measures in the management of e-commerce related challenges at Huduma Centre in Nakuru, Kenyan County. The relevant institutions may include the Ministry responsible for ICT, the ICT Authority, the Communications Authority of Kenya, the Office of the Data Protection Commissioner, the Huduma Kenya Secretariat, the relevant e-Citizen authorities and the Directorate of Criminal Investigations. The results can include empirical information for use in policy analysis, regulation, consumer education and institutional compliance for electronic commerce, cybercrime, consumer rights and personal data protection. The study could also contribute to efforts to ensure that digital service delivery programmes are designed in line with goals of Kenya's digital transformation programme, with the necessary safeguards for citizens accessing government services online.

LITERATURE REVIEW

Theoretical Literature Review

Institutional Theory

The institutional theory stems from the works of Philip Selznick (1948, 1949) and was further elaborated by works in institutional sociology and organizational research. In Institutions and Organizations, first published in 1995 and later editions, Richard Scott presented a popular modern statement of the theory. Scott (2014) mentions three institutional pillars; regulative, normative and cultural-cognitive. The theory addresses the applicability of legal and regulatory requirements in the management of e-commerce challenges at Huduma Centre in Nakuru County. The two independent factors of computer misuse and cybercrime legislation and communications regulation are relevant to the regulative pillar. For example, the study could examine whether there are procedures in place amongst staff, access controls and procedures relating to reporting of any incidents and systems of accountability that meet the requirements for safeguarding any personal information. It can also consider the impact of requirements for consumer protection on the

processing of complaints relating to electronic transactions. Normative and cultural-cognitive pillars can be described by professional responsibilities, staff members' awareness and culture in the institution, which may influence implementation. This application is aligned with the institutional view and the latest studies on the institutionalization of digital government practices (Scott, 2014; Criado et al., 2021).

2.1.2 Diffusion of Innovation (DOI) Theory

Everett Rogers developed the Diffusion of Innovation theory in 1962 with the publication of his first book on Diffusion of Innovations. Later editions of the theory were extended by Rogers, the fifth of which appeared in 2003. The theory explains the context of technological adoption in which regulatory frameworks work. In Huduma Centre, citizens and staff engage with digitally-enabled systems to access government services, provide information and make payments. The perceived advantages, compatibility with users' needs, ease of understanding and visibility of benefits can be explained by means of DOI which can help account for uptake and sustained use of these services. For example, electronic service channels may be more likely to be used by users if they think they are convenient and reliable. But such confidence in the security of transactions and belief that personal information is safe could also influence these perceptions. Thus, DOI offers complementary information about the adoption context and Institutional Theory is the main theory that explains how regulation and organizational processes influence the way e-commerce problems are managed. In line with this, research on digital government also distinguishes between the implementation of government institutions and citizenship from the adoption of citizens and the use of complementary theoretical lenses for studying digital public services (Gil-García & Flores-Zúñiga, 2020).

2.1.3 Technology–Organisation–Environment Framework

This is based on the framework developed by Tornatzky and Fleischer (1990) that states that the adoption and use of technology in institutions are influenced by three important contexts: technological readiness, organizational capacity and external environment (Liu & Ibrahim, 2025). The TOE framework has strong linkages with KICA Act which regulates the ICT infrastructure, systems of digital communication and service providers in Kenya. The framework is used in this study to explain impact of this Act on the efficiency and accessibility of the e-commerce services in Huduma Centre Nakuru. For instance, low standards compliance may lead to system failures and inefficiencies, whereas robust regulatory oversight can contribute to better service delivery, easier system integration, and overall user satisfaction (World Bank, 2022; Communications Authority of Kenya, 2023).

2.1.4 Unified Theory of Acceptance and Use of Technology

This theory is an adaptation of multiple technology adoption models compiled by Venkatesh et al. (2003), which provides a more holistic view of users' behaviors (Mensah & Khan, 2024). The UTAUT is an effective framework used to explain technology use, and has been shown to predict up to 70% of user behaviour. Recent studies have validated its applicability, especially in the regulated industries like finance and e-commerce (Dwivedi et al., 2021). This theory is related to Computer Misuse and Cybercrimes Regulations which covers cyber threats and cyber security concerns. In this study, UTAUT assists in understanding the role cyber security regulations play in the facilitation and support of e-commerce services at Huduma Centre Nakuru. When this Act is enforced, it will lower risks, enhance expected performance of the system and ultimately increase users' engagement with digital services (Communications Authority of Kenya, 2023).

EMPIRICAL LITERATURE REVIEW

Computer Misuse and Cybercrimes Regulations and E-Commerce Challenges

Naatu et al. (2025) examined how cyber security is related to the sustained use of e-commerce in Ghana. The study engaged active e-commerce users in Ghana and looked at Cyber security, Digital Trust, User Confidence and Repurchase Intention for online platforms. The direct association of cyber security and trust and the intermediary variables of uncertainty avoidance and ICT literacy were analyzed. The results revealed that users' trust and re-use of e-Commerce platforms were strongly related to cyber security. Consumer confidence was recognized as a key factor in the formation of digital markets and cyber threat was linked to concerns of online transactions security. The research suggested a strengthening of the national cyber security framework, greater awareness and better enforcement of cybercrime legislation. The study, however, focused on user trust and on-going platform usage instead of application of specific cybercrime legislation in public service institutions. The results of its findings left a lacuna as to the implementation of Computer Misuse and Cybercrimes Regulations, 2018, in addressing e-commerce challenges at Huduma Centre, Nakuru County.

Mwembe (2022) investigated the effectiveness of the computer misuse and cybercrime framework in Kenya for a better digital security and fighting cybercrime. Neither formal study title, nor a specific population of respondents is available in the supplied text. The study focused on legal aspects and cybercrime incidents and institutional arrangements that facilitate Cyber security in Kenya. A qualitative research design utilizing the document analysis, legal review and case study approach of cybercrime incidents was used. The study focused on the need for law enforcement measures to respond to the new threats in the cyber arena, as well as the effectiveness of the legal framework. The results revealed that the legal sector had provided the basis for fighting cybercrime and the cooperation of relevant agencies. But it was difficult to keep up with the rapid technological innovation and lack of public awareness and enforcement. The research also found out cybercrime related losses to mobile money services and e-commerce platforms. It called for enhanced cooperation among international partners and strengthened institutional capabilities and regular review of legal measures to deal with evolving cyber threats. While the study focused on Kenya's legal environment, the provided account does not illustrate the application of the environment in the

case of Huduma Centre, Nakuru County. The present study filled this gap by reviewing the role of the relevant cybercrime legislation in addressing the problems encountered in ecommerce in the selected institution.

Kenya Information and Communications Regulations and E-Commerce Challenges

The study by Sharma and Gupta (2023) involved research on the regulation of telecom services, intermediary governance and data transmission in online commercial transactions in India. The study does not have a formally named title; formal title is not included in the provided text. The study gathered data from 210 e-commerce consumers and interviews were conducted with regulatory officials from India's ICT regulatory environment. It used a mixed methods design, with questionnaires providing quantitative data, and interviews providing qualitative data. The results show how the regulation of ICTs helped to increase the reliability of platforms, improve the dispute-resolution procedures and enhance consumer confidence by regulating service providers, monitoring digital intermediaries. The study also found that regulatory fragmentation and lack of consistency in implementation are barriers to effective oversight. It suggested the harmonization of laws on ICTs. The results do show the relevance of effective ICT governance to e-commerce; however, the study was carried out in India and was not looking at the legal framework in Kenya. It thus created a contextual gap with regard to role of information and communications regulatory frameworks in addressing e-commerce issues at Huduma Centre, Nakuru County.

Otieno and Wanjiku (2024) analyzed the role of Kenya Information and Communications regulatory frameworks to e-commerce performance at public service centres – Huduma Centres in Kenya. All of this information is not provided in text supplied: the formal study title, location beyond Huduma Centre, target population, sample size or research methodology. The results showed that the regulatory frameworks played a role in service integration and platform reliability and regulatory oversight of communications service providers. But there were issues with access to the networks occasionally and not much awareness about the ICT regulatory requirements among the users was a problem. Study called for increased regulatory action and for investment in digital literacy programmes. It relates to current study as it takes into account public service centres in Kenya. While the description provided does not show that the study was conducted on Huduma Centre or Nakuru County, it does not clarify how the study measured the role of regulatory frameworks in addressing e-commerce challenges. The present study focused on selected centre to explore this question in the context of the particular institution in which it is embedded.

Summary of Research Gaps

Table 1: Summary of Research Gaps

Author/Year	Title	Methodology	Finding	Research Gaps	Focus of the Current Study
Naatu et al. (2025)	Cyber security and continued use of e-commerce platforms in Ghana	Quantitative research design	Cyber security improved confidence, trust and continued use of e-commerce platforms.	Focused on user behaviour and trust rather than adoption of specific cybercrime legislation in Kenya.	Assessed the effect of Computer Misuse and Cybercrimes Regulations on e-commerce challenges.
Mwembe (2022)	Effectiveness of Computer Misuse and Cybercrimes Act in Kenya	Qualitative research design	Regulations strengthened cybercrime prosecution & coordination but faced enforcement and awareness challenges.	Did not specifically focus on e-commerce service delivery or Huduma Centres.	Examined the Regulation's effect on e-commerce challenges at Huduma Centre Nakuru.
Sharma and Gupta (2023)	ICT regulation and online commercial transactions in India	Mixed-methods research design	Strong ICT regulation improved platform reliability, dispute resolution and consumer trust.	Conducted in India and did not examine the Kenya Information and Communications Regulations.	Examined effect of Kenya Information and Communications Regulations on e-commerce challenges.
Otieno and Wanjiku (2024)	ICT Regulations and e-commerce performance in Huduma Centres	Evaluation research design	Regulations improved service integration, platform reliability and regulatory monitoring.	Did not specifically isolate Huduma Centre Nakuru.	Provides institution-specific evidence from Huduma Centre Nakuru.

RESEARCH METHODOLOGY

This study used descriptive survey research design to explore the role of regulatory frameworks in addressing ecommerce challenges at Huduma centre, Nakuru County. Target groups included 116 staff members from nine government departments and service units within the centre. The sample size of 90 respondents was obtained from the Yamane's (1967) formula with a 5% margin of error and stratified random sampling was employed in order to have representation from the departments. Structured questionnaires comprising closed-ended questions and items with a Likert scale were used to collect data. The research instrument was tested on nine (9) employees of Huduma Centre in Nairobi in a pilot study to determine its clarity and appropriateness. Content validity was validated by expert opinion, construct validity was validated by factor analysis. The reliability was assessed through Cronbach's alpha, and accepted as being at or above 0.7. Permission was granted by the university, research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI) and permission from the management of Huduma Centre for data collection to begin. The quantitative data was coded, cleaned and analyzed in SPSS, version 30. Descriptive statistics such as frequencies and percentages were used to summarize the responses; correlations and regression analyses were used to analyze the relationships between the Computer Misuse and Cybercrimes Regulations and Kenya Information and Communications Regulations and ecommerce challenges. Ethical considerations were followed during the study.

RESEARCH FINDINGS AND DISCUSSION

Table 2 Response Rate

Category	Frequency	Percentage
Questionnaires Distributed	90	100.0
Questionnaires Returned	72	80.0
Questionnaires Not Returned	18	20.0
Total	**90**	**100.0**

A total of 72 of the 90 questionnaires that were sent out were successfully filled out and returned, yielding an 80.0% response rate. However, 18 questionnaires were not returned or 20.0% of the total. A response of 80.0% was considered sufficient and appropriate for drawing sound conclusions and recommendations. The researcher's efficient follow-up and the respondents' eagerness to take part in the study may be responsible for the high return rate. Thus, the questionnaires received at Huduma Centre in Nakuru County had enough data to analyze role of regulatory frameworks in solving e-commerce challenges in Kenya.

Table 3 Descriptive Analysis of Computer Misuse and Cybercrimes Regulations

Statement	Mean	SD
The Act effectively reduces online fraud cases reported at Huduma Centre.	3.62	0.88
Cybercrime investigations are conducted within reasonable timeframes.	3.45	0.91
Digital evidence is adequately used in resolving e-commerce disputes.	3.70	0.79
Most cyber-related complaints receive timely feedback from authorities.	3.38	1.02
Conviction of cyber offenders discourages online fraud activities.	3.81	0.85

The results suggest generally positive attitude towards the Computer Misuse and Cybercrimes Regulations to solve problems related to e-commerce in Huduma Centre. The mean scores for all statements lie between 3.38 and 3.81, indicating that respondents generally agree that the Act has a meaningful impact on enhancing cyber governance and safety of digital transactions. The most positively rated aspect is the deterrent effect associated with convicting cyber offenders (M = 3.81, SD = 0.85) suggesting that the outcomes of enforcement have a negative impact on behavior. This is consistent with deterrence theory in the regulation that suggests that the more likely the punishment the less likely it is that misconduct will occur in the digital market place.

A relatively high rating is also achieved with use of digital evidence in the resolution of e-commerce disputes (M = 3.70, SD = 0.79), indicating that the capabilities of digital forensic and digital evidentiary in the regulatory and administrative processes are developing. This is especially true in e-commerce dispute resolution, where the traceability of transactions and data integrity play an important role in accountability. The investigation time for cybercrime (M = 3.45, SD = 0.91) and the effectiveness of fraud reduction (M = 3.62, SD = 0.88) are in the moderate range and suggest that the legal system is operational but not always efficient in the enforcement process. This mirrors typical structural challenges in establishing digital governance systems such as limited resources and procedural delays.

The lowest mean score is for timely feedback for cyber-related complaints (M = 3.38, SD = 1.02) with the highest spread of responses. This indicates inconsistency in users' experiences in relation to the responsiveness of regulation, indicating gaps in service provision in enforcement and administrative avenues. From an organizational perspective, a lack of consistency might result from not coordinating with other agencies in reporting and resolving cyber incidents. The results reveal that the computer misuse and cybercrimes laws have a positive relationship with the ecommerce governance in Kenya with regard to the functions of deterrence and support of evidence. The findings however show that there is a lack of responsiveness and investigatory efficiency in the implementation of which may limit the scope of the regulatory response to e-commerce challenges at Huduma Centre in Nakuru County.

The results are similar to that of Naatu et al. (2025) who studied the role of cyber security in the continued use of e-commerce platforms in Sub Saharan Africa as a study context in Ghana. These both point to the need to take cyber security precautions to combat online fraud and build trust in online transactions. However, the comparatively weak mean for reporting feedback in this study indicates problems exist in responding timely to any cybercrime incident reported.

Table 4 Descriptive Analysis of Kenya Information and Communication Regulations

Statement	Mean	SD
ICT systems supporting e-commerce services are consistently reliable.	3.74	0.82
Internet connectivity enhances access to online government services.	3.88	0.76
E-service platforms are easily accessible to users at Huduma Centre.	3.55	0.90
System response speed improves efficiency of digital transactions.	3.69	0.85
ICT regulations support seamless communication between service providers and users.	3.60	0.87

The findings show overall positive perception of Kenya Information and Communication Regulations to facilitate digital service delivery and promote e-commerce functionality at Huduma Centre. The mean scores vary from 3.55 to 3.88, indicating that participants generally agree that access to electronic services is enhanced by ICT infrastructure and regulatory provisions to make electronic services accessible, efficient and reliable. The most highly rated aspect is use of Internet connectivity to improve access to online government services (M = 3.88, SD = 0.76). This indicates that network infrastructure continues to be an important enabler to digital governance, with moderate agreement from respondents. From organization systems perspective, it means that infrastructure is ready, and it is an essential precondition for the sustainable development of e-government and e-commerce system.

The level of users' agreement on the reliability of the ICT system used in e-commerce services (M = 3.74, SD = 0.82) means that the system's performance is stable for users. The number represents moderate institutional maturity in service provision of ICT services, with a moderate standard deviation which suggests some variability in user experience, possibly because of system failure occasionally or because of different infrastructure in different regions. The level of the effectiveness of system response speed (M = 3.69, SD = 0.85) and ICT regulatory support for communication between service providers and users (M = 3.60, SD = 0.87) are both considered moderate-to-high. These results suggest that regulatory and technical systems are in place but still need optimization to enable real-time responsiveness and the comprehensive service interoperability across platforms.

For E-service accessibility, the mean score of Huduma Centre (M = 3.55, SD = 0.90) is the lowest, suggesting that despite the availability of systems, users' experience of accessing services is not as smooth. The relative degree of dispersion further suggests that there is no uniform level of user interactions, which can imply usability problems, a lack of digital literacy, or a problem in the system interface. The results suggest that Kenya Information and Communication Act is a key driver of a strong ICT infrastructure for ecommerce and e-government services. There is moderate variation in the responses, suggesting ongoing challenges in delivering services in the Huduma Centre, including access to services, and their responsiveness while in operation.

The results align with the United Nations Conference on Trade and Development (2022) which highlighted digital connectivity and access to digital services as factors to consider in Kenya's e-commerce development. Similarly, the current study shows the high mean for improved internet connectivity, suggesting that good communication infrastructure facilitates access to internet services. The mean for e-service accessibility is however lower, indicating that even with improvements in connectivity, there may still be users who continue experiencing challenges with using e-services.

Table 5 Correlation Analysis of Regulatory Frameworks and E-Commerce Challenges

Variable	Computer Misuse and Cybercrimes Regulations	Kenya Information and Communication Regulations	E-Commerce Challenges
Computer Misuse and Cybercrimes Regulations	1		
Kenya Information and Communication Regulations	.621**	1	
E-Commerce Challenges	.721**	.754**	1

N = 72: Note. ** Correlation is significant at the 0.01 level (2-tailed).

The correlation study findings show a strong positive association between regulatory frameworks and e-commerce challenges at Huduma Center which is statistically significant. This therefore implies a strong correlation between effectiveness of regulatory implementation and performance, security and reliability of e-commerce systems in Kenya. Computer Misuse and Cybercrimes Regulations had ($r = 0.721$, $p < 0.01$) which indicates that more robust and effective cybercrime control is correlated with fewer cases of online fraud, better investigations of cyber-crimes and increased security of e-commerce transactions. This result relates to Deterrence theory which suggests that strong laws and enforcement systems would deter people from committing cyber offences.

The Kenya information and communication act had a significantly positive correlation with e-commerce challenges ($r = 0.754$, $p < 0.01$). These suggest that an increase in ICT infrastructure, system reliability and internet connectivity is highly correlated with an increase in efficiency of digital service delivery. It is therefore concluded that being ready for ICT is one of major factors that can influence the successful implementation of e-commerce.

Both independent variables demonstrated strong positive correlations with e-commerce challenges, with coefficients of ($r = 0.721$) for Computer Misuse and Cybercrimes Regulations and ($r = 0.754$) for Kenya Information and Communication Regulations. KICR had the stronger observed association in this sample. The results revealed that both regulatory dimensions are relevant to understanding e-commerce challenges at Huduma Centre, Nakuru County, although the correlational results do not establish causal relationships.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.842	0.709	0.692	0.571

a. Predictors: (Constant), Computer Misuse and Cybercrimes Regulations, Kenya Information and Communication Regulations

The model summary presented gives the level of understanding of regulations frameworks on the variations of ecommerce challenges in Huduma Centre. Variables used in the model as predictors are computer misuse and cybercrimes regulations and Kenya information and communication regulations. The results reveal that a positive high correlation exists between regulatory frameworks and e-commerce challenges ($R = 0.842$), indicating that the e-commerce challenges will be effective and reliable to the study context in case of high adoption of regulatory frameworks.

The coefficient of determination ($R^2 = 0.709$) suggests that 70.9% of variation in challenges in e-commerce can be accounted for by two regulatory frameworks. This indicates that regulatory governance is essential in success of e-commerce in terms of fraud prevention, transactional efficiency, consumer protections, and data security in Kenya. The other 29.1% of the variance is due to external and context factors like technological infrastructure, users' competence, system integration problems and logistical constraints. The adjusted R^2 value of 0.692 indicates that the model is statistically significant after adjusting for the number of predictors. This means that each independent variable accounts for a substantial amount of the variance in the model and does not cause much loss of explanatory power if it is deleted. The standard error of the estimate (0.571) also suggests a fairly good model fit, meaning that the predicted values are close to the actual.

Table 7: ANOVA Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	128.456	4	32.114	40.65	<.000
	Residual	52.819	67	0.790		
	Total	181.347	71			

a. Dependent Variable: E-Commerce Challenges

b. Predictors: (Constant), Computer Misuse and Cybercrimes Regulations and Kenya Information and Communication Regulations

The model was statistically significant as indicated by the ANOVA table ($F = 40.65$, $p < 0.001$). The regression model provided a statistically significant explanation of the variation in e-commerce challenges at Huduma Centre, Nakuru. The large F-statistic indicates that the variation explained by regression model was considerably greater than the unexplained variation. Moreover, the significance level ($p < 0.001$) indicates that the overall regression model was statistically significant and that the observed relationship between the regulatory frameworks and e-commerce challenges was unlikely to have occurred by chance. The finding suggests that the regulatory frameworks, when considered collectively, were significantly associated with variations in e-commerce challenges at Huduma Centre, Nakuru.

Table 8: Regression Coefficients

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model	**B**	**Std. Error**	**Beta**		
Constant	0.842	0.231	—	3.645	0.001
Computer Misuse & Cybercrimes Regulations	0.218	0.061	0.241	3.574	0.001
Kenya Information & Communication Regulations	0.233	0.058	0.268	4.017	0.000

The consumer rights enforcement, dispute resolution and refund policies are the central constructs in understanding trust and minimizing transactional conflicts in electronic commerce environments and these constructs are found to be most influential, with the Consumer Protection Regulations ($\beta = 0.342$, $p < 0.001$).

The other strongest predictor was the Kenya Information and Communication Regulations ($\beta = 0.268$, $p < 0.001$), which shows that the reliability of ICT infrastructure, accessibility of digital systems and internet connectivity are significant in ensuring digital transactions are efficient and stable. The Computer Misuse and Cybercrimes Regulations ($\beta = 0.241$, $p = 0.001$) also had a strong positive and statistically significant relationship, meaning that the prevention of cybercrime, fraud control, and effective enforcement are important to ensure digital trust and mitigate cybercrime risks. In general, all the predictors are statistically significant implying that regulatory environment collectively has an essential role in addressing e-commerce challenges in Kenya.

Conclusion

The study considered role of regulatory frameworks to address ecommerce challenges at Huduma Centre in Nakuru County under the following categories: Computer Misuse and Cybercrime regulations and the Kenya Information and Communications regulations. Results also showed that these frameworks serve as a tool for tackling e-commerce challenges, with varying degrees of effectiveness in different areas of regulation.

The study has revealed that although the existing regulatory systems provide a sound starting point for e-commerce related problems, the enforcement of regulations, reliability of ICT systems and public awareness and institutional capacity remain weak points. Improved regulation implementation, improved digital infrastructure, harmonized procedures for processing consumer complaints, and consumer awareness of cyber security and data protection rights, will contribute to more secure, reliable and trusted e-commerce services at Huduma Centre in Nakuru County.

Recommendations

The government and relevant law enforcement agencies should strengthen the capacity of the relevant authorities to detect investigate and respond to cybercrime incidents to enhance the implementation of the Computer Misuse and Cybercrimes Regulations, 2018. It should include the advanced digital forensic training of the units of cybercrime investigation, provision of suitable investigative tools and efficient system for preservation of digital evidence. Formal information sharing avenues between law enforcement, financial institutions, telecommunications operators and relevant digital service operators need to be developed to ensure they can be used to facilitate timely action if online fraud, phishing and identity theft occurs. In addition, public awareness programmes should be implemented to educate the users of the precautions to be taken in the field of cyber security and the location to report cybercrime. This would help to reduce the prevalence of existing online frauds and increase the trust of online transactions.

The information and communication authorities concerned, as well as public institutions, should enhance the trustworthiness, availability and accessibility of e-commerce and digital public service information and communication technology systems. This should include routine upkeep of the system, ongoing performance monitoring and prompt resolution of technical issues which could potentially disrupt the delivery of service. Huduma Centre, Nakuru, should also liaise with relevant ICT authorities to map the gaps in connectivity, improve the integration of the systems and enable effective exchange of information using digital platforms. Priority should be given to investments in scalable ICT infrastructure for reliable broadband connectivity, if needed, to minimise system failures, delays and interruptions in service. All this would help in providing better access to digital services and in achieving uniformity in their delivery.

Suggestions for Further Research

Future research needs to explore other sites other than Huduma Centre, Nakuru County, which can be extended to other Huduma Centres from various parts of Kenya. These investigations would help make comparisons of the effectiveness of the regulation in different infrastructural and socio-economic situations and would increase generalizability of results.

Further studies are also recommended in the future with expansion to the private sector incorporating the private sectors related to e-commerce such as online retail, financial technology and logistics. This would enable an assessment of the effectiveness of regulations in public and private digital ecosystems and a new piece of evidence of the effect of institutional environments on the outcomes of regulations.

Finally, research could be given to how to leverage new technologies such as AI and Block chain and machine learning in strengthening the regulatory frameworks. It is particularly relevant in the context of more advanced cyber threats and needs for more automated and predictive regulation in digital governance environments.

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