

Kerkulah P Nyeleker

Jusuf Kalla School of Government, Department of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia. (email: kerkulah.p.isip22@mail.umy.ac.id)

Achmad Nurmandi

Jusuf Kalla School of Government, Department of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia

Chinyabuuma Bengibabuya Esther

Department of Management, Universitas Muhammadiyah Yogyakarta, Indonesia.

Ruth Kunda

Department of Accounting, Universitas Muhammadiyah Yogyakarta, Indonesia.

Herman Lawelai

Department of Government Science, Universitas Muhammadiyah Buton, Indonesia.

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Kerkulah P. Nyeleker is a Liberian researcher and graduate of the Department of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta (UMY), Indonesia. He currently serves as a Research Assistant at the Jusuf Kalla School of Government (JKSG), UMY, and the Asia Pacific Society for Public Affairs (APSPA). His research focuses on governance and public policy, with particular interests in sustainable resource governance, development policy, and EU–Africa relations. His current work examines governance challenges and institutional development in Africa, with an emphasis on public policy and sustainable development.

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E-Government, Governance Quality, and Control of Corruption in ECOWAS: A Governance-System Perspective

Abstract

Corruption remains a persistent challenge to governance and sustainable development across Africa. This study examines the relationship between e-government development, governance quality, and control of corruption in the Economic Community of West African States (ECOWAS) member states. It investigates whether digital reforms can substitute for weak institutions in strengthening control of corruption or whether their effectiveness depends on governance quality. A quantitative cross-sectional design was employed using secondary data from the United Nations E-Government Development Index and the Worldwide Governance Indicators for the twelve active ECOWAS countries. Descriptive statistics, Pearson correlation, and multiple regression analysis were conducted using SPSS version 17.0. The findings reveal that both e-government development and governance quality are positively associated with control of corruption, with governance quality exhibiting the stronger institutional relationship. The results further indicate that e-government development and governance quality function as complementary components of a broader governance system rather than as competing determinants. The study advances a governance-system perspective by demonstrating that the anti-corruption potential of e-government is conditioned by governance quality. Digital reforms therefore complement, rather than substitute for, strong governance institutions in strengthening corruption control, with implications for governance reform across ECOWAS and comparable contexts.

Keywords: ECOWAS; corruption; e-government; governance quality; Sub-Saharan Africa

Achmad Nurmandi is Professor of Government Studies and Rector of Universitas Muhammadiyah Yogyakarta (UMY), Indonesia. He obtained his Bachelor's degree in Government Science from Universitas Gadjah Mada in 1989, a Master of Science in Development Planning and Environmental Management from the Asian Institute of Technology, Thailand, in 1995, and a Doctorate in Public Administration from the University of Indonesia in 2008. His research interests include urban governance, e-governance, smart cities, inter-regional service management, public management, and knowledge management in local government.

Chinyabuuma Bengibabuya

Esther is a Congolese (Democratic Republic of the Congo) researcher and graduate of the Department of Management, Universitas Muhammadiyah Yogyakarta (UMY), Indonesia, where she obtained both her Bachelor's and Master's degrees in Management. Her research explores organizational and social dimensions of management, with particular interests in human resource management, organizational culture, humanitarian aid, refugee governance, and the everyday experiences of displaced communities. She is especially interested in understanding how organizations and institutions respond to humanitarian challenges and promote sustainable development in fragile settings. Her work combines management perspectives with broader issues of governance, resilience, and community development.

Introduction

Corruption is a continuing barrier to good governance and sustainable development. Corruption is an act that reduces public trust, weakens the integrity of institutions, hampers proper policy implementation and use of public resources to serve personal interests (Nambassa & Nurmandi, 2024). According to Klitgaard (2019), the problem becomes especially important when corruption becomes a normal part of social life rather than a rule violation. The World Bank (2020) has reported that each year, US\$1 trillion is spent on bribes and US\$2.6 trillion is lost due to the misuse of financial assets and related activities which comprise more than 5% of world GDP. Developing countries suffer most from corruption, as money that should have been used to provide people with health care, education and other services is wasted, and thus, contributes to poverty and development problems (UNODC et al., 2024; Vhutali & Saba, 2024). Corruption therefore remains both a governance problem and a major barrier to sustainable development.

Corruption persists because it is often embedded within political and administrative systems rather than resulting solely from weak regulations (Nyeleker et al., 2025). Formal rules may exist; however, weak enforcement, ineffective oversight, and limited institutional capacity frequently allow corrupt practices to thrive (DeSouza et al., 2025). This helps explain why countries pursuing similar reforms often experience very different outcomes. In response, governments and international organisations have increasingly promoted two broad strategies: e-government development and improvements in governance quality (Chen & Aklikokou, 2021). Digital reforms seek to increase transparency and reduce bureaucratic discretion, while governance reforms focus on strengthening accountability, political stability, government effectiveness, regulatory quality, and the rule of law (Sukarno et al., 2024; OECD, 2025). Both approaches recognise that corruption control depends on the institutions responsible for implementing and enforcing reforms.

These challenges are especially evident in Sub-Saharan Africa, where corruption continues to hinder the process of delivering public services and undermining institutional performance and economic development (Akpan-Obong et al., 2023). According to the African Development Bank (2024), corruption and illicit capital flows cause losses from \$88 billion to \$580 billion to the continent every year. In this regard, ECOWAS can serve as an ideal environment to study corruption control efforts. This organization has undertaken various measures to combat corruption. However, even with such actions, corruption is still pervasive (Noah & David, 2024). All the ECOWAS member states except for Cabo Verde, according to the 2024 Corruption Perception Index, are still faced with high and very high corruption risks (Transparency International, 2024). From Table 1 below, it can be seen that there are various political, administrative, and institutional problems linked with these results.

Studies show that the control of corruption is also affected by digital governance and institutions. E-government initiatives are anticipated to decrease the possibility of corruption through better transparency, effective monitoring, and less discretionary power in public sector governance (Nambassa & Nurmandi, 2024; Sukarno et al., 2024). The success stories of countries like Denmark, Finland, Singapore, and Australia have proven the

Ruth Kunda is a Zambian researcher and graduate of the Department of Accounting, Universitas Muhammadiyah Yogyakarta (UMY), Indonesia, where she earned both her Bachelor's and Master's degrees in Accounting. Her academic interests focus on public sector accounting, financial management, corporate governance, accountability, auditing, and financial reporting. She is particularly interested in examining how sound financial governance and transparent accounting systems contribute to institutional performance and sustainable development. Her research also explores issues related to public financial accountability and governance reforms in developing countries, with an emphasis on strengthening organizational effectiveness through improved financial management practices.

Herman Lawelai is an Associate Professor in the Department of Government Science, Universitas Muhammadiyah Buton (UMButon), Indonesia. His research focuses on digital governance and public-sector innovation, particularly in the areas of e-government, cybersecurity governance, smart cities, digital transformation, and sustainable governance. He has authored numerous publications on digital government, smart governance, and technology-enabled public administration in international journals. His recent work examines cybersecurity policy, digital maturity, collaborative governance, and the application of emerging technologies to improve public service delivery and government performance. He actively collaborates with national and international researchers on governance, digital innovation, and public policy.

impact of digital governance on the efficiency of public institutions (United Nations, 2024). Nevertheless, governance quality still plays an important role. Voice and accountability, political stability, government effectiveness, regulatory quality, and rule of law define the environment in which public sector institutions function and the effectiveness of their rules implementation (Absadykov, 2020; Yuliantini & Nurmandi, 2023). Corruption tends to be lower in cases where institutional supervision and capacity are higher. This shows that digital transformation and governance quality can be regarded as mutually reinforcing elements of anti-corruption measures rather than as alternative mechanisms, as discussed by Akpan-Obong et al. (2023).

Table 1. Corruption severity, risk levels, and key drivers in ECOWAS

Country	CPI Score (0 – 100)	CPI Rank	Corruption risk	Key drivers of corruption
Cabo Verde	62	35	Moderate risk	vulnerabilities in administrative bureaucracy and public procurement processes.
Benin	45	69	High risk	high levels of petty bribery in public services; weak oversight in customs and port operations.
Côte d'Ivoire	45	69	High risk	political patronage; corruption within the cocoa and agricultural trade sectors; land tenure disputes.
Senegal	45	69	High risk	political influence and concentration of power; opacity in the emerging oil and gas sector; high levels of perceived administrative bribery
Ghana	42	80	High risk	political party financing (monetization of politics); corruption in natural resource management (timber and gold).
The Gambia	38	96	High risk	political interference, petty bribery within law enforcement and at transit checkpoints
Sierra Leone	33	114	Very high risk	corruption in the justice and police sectors; resource mismanagement; issues in public procurement and administration.
Togo	32	121	Very high risk	centralized political power; lack of independent checks on power; weak rule of law; high levels of poverty/inequality.
Guinea	28	133	Very high risk	political instability; high levels of state capture; resource curse dynamics (minerals); weak rule of law.
Liberia	27	135	Very high risk	extremely high rates of bribery for basic public services, poor judicial independence, and land acquisition irregularities.
Nigeria	26	150	Very high risk	resource curse (oil rents, elite capture); political influence in public service; high levels of petty and grand corruption; security sector corruption.
Guinea-Bissau	21	158	Very high risk	transnational organised crime (narcotics trafficking); deep-seated political instability and "state capture".

Source: Transparency International (2024) and the author's elaboration based on previous studies

The existing literature, however, provides only partial insight into the contribution of these variables to corruption prevention efforts. The current literature tends to investigate the use of e-governance in terms of its contributions to transparency, efficiency, and service provision (Nambassa & Nurmandi, 2024; Palmisano & Sacchi, 2024), while the literature on governance investigates such variables as accountability, government effectiveness, political stability, and regulatory quality as distinct antecedents of successful anticorruption efforts (Handoyo & Fitriyah, 2018; Gallego-álvarez et al., 2021; Mahmoud et al., 2025). Thus, the problem of corruption becomes viewed from individual institutional perspectives. It therefore becomes challenging to explain why similar reform initiatives pursued by countries yield different outcomes. This is especially the case in Sub-Saharan Africa, where there is great variance in terms of levels of digitization, institutional capabilities, and government performance in these countries (Farooque et al., 2022; Mahmoud et al., 2025). It is important to consider these aspects under one analysis framework for a better comprehension of corruption management in Sub-Saharan Africa.

The paper examines the relationship between e-government development, governance quality, and control corruption in ECOWAS member states. It is an appropriate choice since it consists of countries that have similarities in regional reforms but differ in the extent of e-government development, governance quality, and anti-corruption results. This paper tries to answer the following question: can digital reforms substitute for weak institutions in strengthening control of corruption, or do they depend on governance quality? To answer this question, the study examines how e-government development and governance quality are jointly associated with control of corruption across ECOWAS member states. Control of corruption is treated as the dependent variable, while e-government development and governance quality are examined as explanatory variables.

Three important contributions are made by the study. First, it combines the theories of e-government and governance quality into one theory since they have been studied separately so far. Second, it brings empirical support to the relationship between e-government, governance quality, and corruption control using ECOWAS. Third, it reinforces the claim that the capacity for anti-corruption through e-government hinges on governance effectiveness and not on digital innovations alone. This, therefore,

enhances the holistic perspective regarding the control of corruption as an output of governance influenced by complementary institutional factors.

The rest of this paper is organized as follows. The second section provides an overview of the literature and the hypotheses. The third section discusses the methodology employed in the analysis. The fourth section provides the empirical results. The fifth section provides the discussion and implications. Lastly, the sixth section concludes the study.

Literature Review

Corruption is always viewed as something arising from the selfishness of individuals; but research shows that it is essentially an institution (Onyango, 2021; Zhang et al., 2023). Corruption happens due to institutions where political and administrative structures create incentives and distribute power such that they control public powers (Nyeleker et al., 2025). From this point of view, corruption is not just about individuals' behavior but also about how governance is done in the country. According to Quah (2022), corruption thrives where there are no consequences for misusing one's position in power. Similarly, studies have demonstrated that institutional strength has an effect on the level of protection of public resources from private encroachment (Gallego-álvarez et al., 2021). In addition to the existence of prohibitive legislation, successful anti-corruption measures involve the creation of independent institutions, enforcement of regulations and procedures, as well as establishment of legal systems that provide checks on the abuse of public resources (Waheduzzaman & Khandaker, 2022). Thus, corruption prevention can be seen as a result of functioning of governance structures rather than of individual efforts.

Currently, e-government development is one of the most prevalent tools used to achieve transparency and minimize chances of corruption. E-government platforms make government processes transparent, trace transactions in public offices, minimize discretionary acts, and limit personal contacts between citizens and government officers that mostly lead to corrupt actions (United Nations, 2024; OECD, 2025). For this reason, investments in technologies including e-procurement, online licenses, and e-service delivery have been linked with low chances of corruption (Farooque et al., 2022; Nambassa & Nurmandi, 2024). But the connection is not always linear. Technology

can help improve processes without bringing about changes in the environment where corruption takes place. This is because of weak enforcement, inadequate monitoring, and political resistance that could allow corruption to continue to take place despite the adoption of technology (Chen & Aklikokou, 2021). Similarly, Mahmoud et al. (2025) emphasize that technology helps to increase integrity as long as there is accountability and political willingness. The anti-corruption effect of e-government therefore appears to depend on broader governance quality.

Governance quality offers the institutional basis for conducting public power that is controlled and overseen. The Worldwide Governance Indicators (WGI) measure this overall governance context using indicators including voice and accountability, political stability, government efficiency, regulation, and the rule of law (Yuliantini & Nurmandi, 2023). Rather than working separately, these indicators together determine the ability of governments to develop policies, regulate, react to their constituents, and avoid abuse of public assets (Handoyo & Fitriyah, 2018). Prior research indicates that countries which have higher levels of governance quality are associated with less corruption because of more supervision and higher accountability of officials (Huque & Jongruck, 2018; Absadykov, 2020). Conversely, poor governance quality leads to the inability to combat corruption despite any reforms being implemented since lack of administrative capacity, low enforcement capabilities, and poor oversight undermine reform results (Handoyo & Fitriyah, 2018; Yuliantini &

Nurmandi, 2023). Governance quality therefore creates the conditions under which anti-corruption reforms succeed or fail.

The relationship between e-government and governance quality remains an important debate in the corruption literature. According to some studies, the use of technological innovations decreases corruption through increased transparency in public administration and reduced dependence on the discretion of public servants (Palmisano & Sacchi, 2024; Mahmoud et al., 2025). Singapore, Finland, Norway, and Denmark are used as examples of states that have successfully combined high levels of e-government development and corruption control (United Nations, 2024). However, other studies argue that governance quality is the determining factor since digitalisation efforts take place within existing political and administrative frameworks (Chen & Aklikokou, 2021; Akpan-Obong et al., 2023). According to Sukarno et al. (2024), in many developing countries, digitalisation can make processes more efficient even without altering corrupt processes since there are no controls on enforcing this. What is important here is not whether e-government development or governance quality independently influences corruption control but whether digital reforms can substitute for weak governance conditions or whether their effectiveness depends upon them. This debate suggests that e-government and governance quality should be understood as complementary rather than competing dimensions of a broader governance system (see Figure 1).

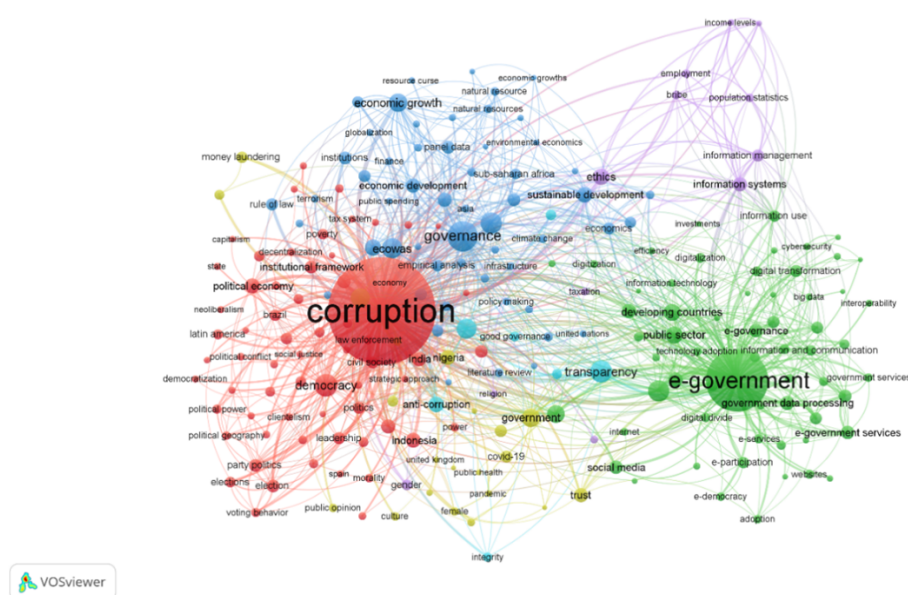


Figure 1. The knowledge domain on corruption, e-government, and governance in ECOWAS
Source: data processed by the author in VOSviewer

Key lessons have been learned from research on e-government, governance quality, and corruption. However, much of the research still looks at these issues in isolation from each other. Literature on digital governance largely concentrates on transparency, services, and efficiency (Nambassa & Nurmandi, 2024; Palmisano & Sacchi, 2024), while research on governance quality usually looks into voice and accountability, political stability, government effectiveness, regulatory quality, and rule of law as different aspects of institutional quality influencing corruption outcomes (Akpan-Obong et al., 2023; Baafi et al., 2024). This dichotomy represents a partial explanation of corruption since most governmental bodies do not work alone. The use of ICTs is done within the framework of governance, and vice versa; governance structures become more and more dependent on ICTs to enhance their efficiency. However, empirical research on the subject in the region of Sub-Saharan Africa, especially ECOWAS, does not provide sufficient information about the issue. This study addresses this gap by integrating e-government development and governance quality within a governance-system framework to examine their joint association with control of corruption. Therefore, the following hypotheses are proposed:

- H1: E-government development is positively associated with control of corruption in ECOWAS member states.
- H2: Governance quality is positively associated with control of corruption in ECOWAS member states.

Conceptual Framework

Controlling corruption should be viewed as an outcome of good governance and not just an act driven by self-interest. Klitgaard (2019) notes that abuse of public office is influenced by political and administrative institutions that make decisions, monitor them, and enforce them. Corruption tends to thrive in situations where there are poor accountability, weak oversight institutions, and little constraint on those in public office (Quah, 2022; Gonçalves &

Leandro, 2024). Conversely, stronger governance systems foster accountability and create mechanisms for monitoring the quality of institutions, increasing the probability that abuse of power will be found out and punished (Chong et al., 2021). This approach moves away from an individual-oriented focus on corrupt practices to a framework where emphasis is placed on the institutional environment which either facilitates or hinders corrupt activities.

E-government and the quality of governance are two aspects of the governance framework within which corruption control is carried out. The application of e-government creates conditions for increased transparency, digital traceability of transactions, reduced discretionary power, and fewer instances of citizens' physical meetings with government officials to prevent rent-seeking activities and increase administrative accountability (United Nations, 2024; OECD, 2025). However, this digital technology in itself does not effectively eliminate corruption. Their effectiveness depends on the institutional environment within which they are implemented. Governance quality, measured by voice and accountability, political stability, government effectiveness, regulatory quality, and the rule of law is what enables digital innovations to bring about any tangible anti-corruption results (Handoyo & Fitriyah, 2018; Yuliantini & Nurmandi, 2023; Mahmoud et al., 2025). As such, this study conceptualises the concept of e-government as a complement to governance quality, where governance quality affects the ability of digital technologies to combat corruption.

The proposed governance-system approach is presented in Figure 2. Control of corruption is the dependent variable, while e-government development and governance quality are defined as two interconnected aspects that determine the overall system. It is assumed that rather than being independent factors of corruption control, these aspects exert their combined effect on the dependent variable within the system. Thus, the framework serves as the tool for the analysis of corruption control associated with e-government development and governance quality in ECOWAS countries.

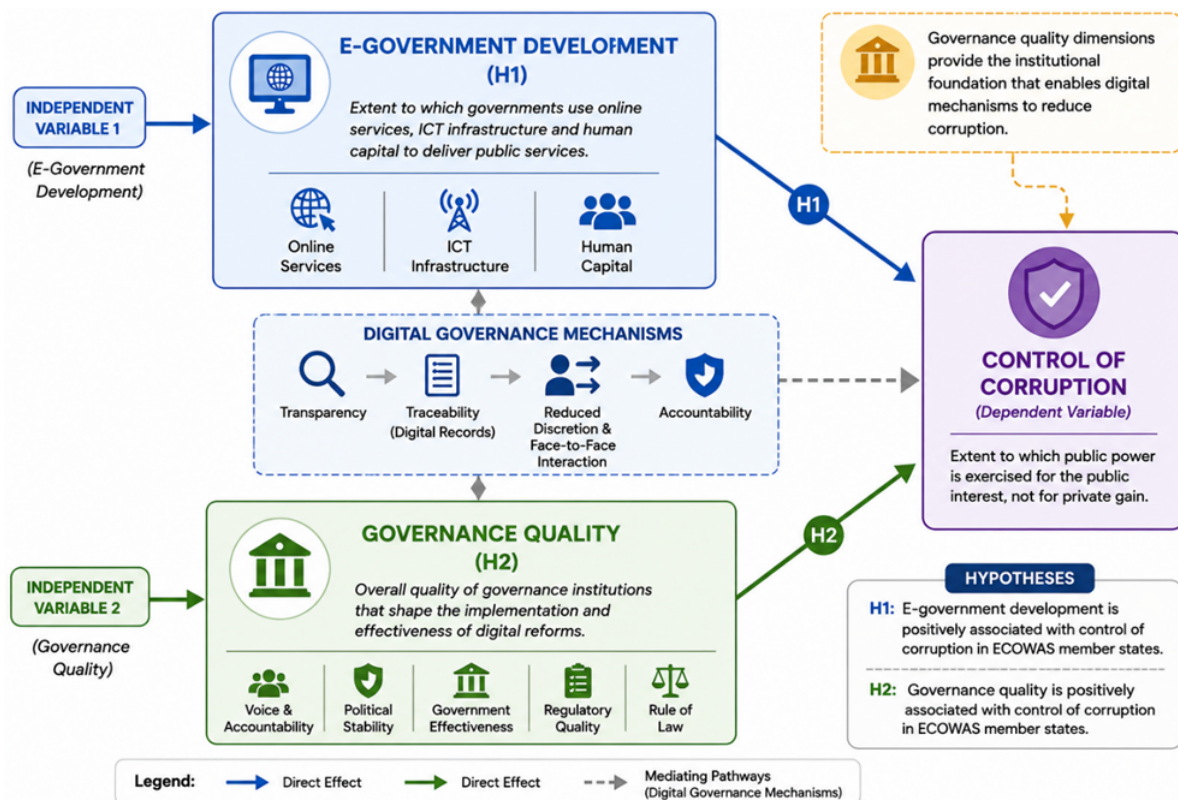


Figure 2. Conceptual framework of e-government development, governance quality, and control of corruption

Source: Developed by the authors based on OECD (2025), United Nations (2024), and Worldwide Governance Indicators (WGI)

Method

Research Design

This research employs a quantitative explanatory design to investigate the relationship between e-government development, governance quality, and control corruption in ECOWAS member states. Explanatory design is suitable for this research because the study aims at explaining variations in the control of corruption and not just describing the governance situation in different countries (Martini et al., 2022). Cross-sectional study is popularly used in comparative governance studies since it allows researchers to analyze the institutions of various but similar political units at a certain point in time (Kagona, 2025). This research design offers a suitable platform for the study of associations between e-government development, governance quality as an institution, and control of corruption in the ECOWAS region.

Study Context and Unit of Analysis

This research is centered around the twelve member states of ECOWAS. The relevance of

ECOWAS as the context of this research is explained by the fact that the member states have already carried out the regional reforms in terms of governance and anti-corruption measures; at the same time, there is a great variability in corruption control, e-governance development, and governance quality among those countries (Akpan-Obong et al., 2023; Noah & David, 2024). A country-level analysis is relevant as the development of e-governance, governance quality, and anti-corruption are considered to be national governance indicators. In this study, governance quality index (GQI) can be defined as an index that consists of all five indicators of Worldwide Governance Indicators (WGI), including voice and accountability (VA), political stability (PS), government effectiveness (GE), regulatory quality (RQ), and rule of law (RL). The calculation of the index is performed by using their arithmetic average:

$$\text{Governance quality index (GQI)} = \frac{VA + PS + GE + RQ + RL}{5}$$

The analysis includes all twelve ECOWAS countries for which complete 2024 data were

available. Table 2 presents the study units, while Figure 3 illustrates the distribution of e-government development across the region.

Data Sources

This study will solely depend on secondary quantitative data and no primary data at all, which includes interviews, questionnaires, observations, and document coding. Data for e-government development was collected from the UN E-Government Development Index (EGDI) (<https://public-administration.un.org/egovkb/en-us/Data-Center>). Data on governance were sourced from the World

Bank's Worldwide Governance Indicators (WGI), which include voice and accountability, political stability, government effectiveness, regulatory quality, and rule of law (<https://www.worldbank.org/en/publication/worldwide-governance-indicators>). These data sets have been chosen due to their standardized measures used in governance and policy research. Data has been collected manually from EGDI and WGI databases and arranged into one data set. The year 2024 was used for all variables so as to ensure the consistency of the data and to represent the latest state of digital government, governance quality and corruption control in ECOWAS countries.

Table 2. E-government development index and governance indicators for ECOWAS states

Country	EGDI	VA	PS	GE	RQ	RL	GQI	CC
Benin	0.45	50.19	59.01	47.74	50.49	49.87	51.46	42.98
Cabo Verde	0.62	70.70	79.04	59.41	55.57	64.27	65.79	66.90
Côte d'Ivoire	0.55	46.06	51.48	45.20	52.23	47.01	48.39	42.09
The Gambia	0.25	53.66	65.59	40.92	44.39	50.18	50.95	41.09
Ghana	0.63	60.43	66.09	52.50	53.45	57.89	58.07	43.94
Guinea	0.40	35.68	48.17	34.07	40.80	37.21	39.18	24.08
Guinea-Bissau	0.30	43.22	55.33	24.75	36.09	35.71	39.02	20.61
Liberia	0.25	54.89	61.99	27.11	41.59	42.03	45.52	26.65
Nigeria	0.48	44.13	31.69	31.77	44.87	39.63	38.42	25.29
Senegal	0.51	57.13	61.99	55.90	51.05	53.44	55.90	50.14
Sierra Leone	0.30	47.87	58.21	32.54	38.16	42.53	43.86	33.64
Togo	0.39	39.84	52.07	35.76	48.43	46.07	44.43	34.43

Note: Governance quality index (GQI) was calculated as the arithmetic mean of voice and accountability (V&A), political stability (PS), government effectiveness (GE), regulatory quality (RQ), and rule of law (RL).

Source: Collected by the authors from EGDI and WGI



Figure 3. Map of ECOWAS countries in this study

Source: Created by the author in MapChart; adopted by UN EGDI

Variables and Measurement

Control of corruption serves as the dependent variable in this study as it indicates the degree to which the use of public power is used for private benefit. Petty and grand corruption are included in this measure (Nyeleker et al., 2025). The explanatory variables that will be considered for the analysis, in accordance with the conceptual framework proposed by the study, include the level of e-government development and the quality of governance. The EGDI is used to quantify the level of e-government development. Governance quality is operationalized as a quality of governance index (GQI) that equals the arithmetic average of the five Worldwide Governance Indicators (WGI) – voice and accountability, political stability, government effectiveness, regulatory quality, and rule of law. Weighting was equal since all aspects of institutional quality are complementary and cannot be justified from either theoretical background or empirical evidence to assign different weights.

The Cronbach's Alpha coefficient was used to measure the internal consistency of the composite index, with an α value of .920, which is indicative of strong consistency and hence the validity of combining all the five governance dimensions as one institutional construct. All the variables were chosen since they are internationally standardized and commonly used in comparison studies on governance. Table 3 presents the operational definition and measurements of the variables.

Data Analysis Technique

The data analysis involved the use of Statistical Package for Social Sciences (SPSS) software version 17.0. Four steps were involved in conducting the analysis. Initially, descriptive statistics were used

to describe the distribution and variability of the dependent and independent variables in the twelve ECOWAS member states. Secondly, the direction and strength of the association between the variables under study were assessed using Pearson correlation analysis. Third, multiple linear regression was performed to determine the joint influence of the development of e-government and the quality of governance on the control of corruption. Lastly, the collinearity diagnostics such as Tolerance and Variance Inflation Factor (VIF) were also done to determine the appropriateness of the regression model.

This research considers the twelve ECOWAS member countries for which all data were collected in 2024. ECOWAS is a proper context for analysis since the member countries have regional interests in reforms of governance and efforts against corruption while differing from each other in terms of their progress in the development of e-government, governance, and corruption control (Akpan-Obong et al., 2023; Noah & David, 2024). The consideration of countries that operate within the same regional context makes it easier to compare governance circumstances.

As indicated in the conceptual framework, governance quality was measured by using a compound variable called governance quality index (GQI), which is computed as an arithmetic average of the five Worldwide Governance Indicators (WGI): voice and accountability, political stability, government effectiveness, regulatory quality, and rule of law. It shows how the governance quality is conceptualised as a multidimensional institution where the five WGI indicators altogether constitute the quality of institutions and not as an individual explanatory factor (Yuliantini & Nurmandi, 2023). Reliability of the composite indicator was determined by Cronbach's alpha, resulting in an index of

Table 3. Description of variables

Variable	Description	Measurement Scale
<i>E-government development</i>	Composite measure of online services, ICT infrastructure, and human capital.	Index (0–1)
<i>Governance quality index (GQI)</i>	Composite index calculated as the arithmetic mean of voice and accountability, political stability, government effectiveness, regulatory quality, and rule of law.	Index (0–100)
<i>Control of corruption</i>	Extent to which public power is exercised for private gain.	Index (0–100)

Source: Author's elaboration

.920, showing very high reliability, and hence the combination of the five governance indicators into one indicator of governance quality is justified (Esther & Rahayu, 2026).

The regression model was formulated for examining the joint effect of e-government development and governance quality on control corruption. Consistent with the theoretical approach used in this study, the joint effect of digital governance capabilities and institutional quality is stressed in the analysis instead of separate impacts of each component of governance. The results are thus viewed as indicating more general governance dynamics in the ECOWAS region and not the separate impacts of institutions.

RESULTS

Descriptive Analysis

Table 4 presents the descriptive statistics for the study variables across 12 ECOWAS member states.

Table 4 presents the descriptive statistics for the study variables across the twelve active ECOWAS member states. The results reveal considerable variation in control of corruption, with scores ranging from 20.61 to 66.90 (mean = 37.65; SD = 13.09), indicating substantial differences in the capacity of member states to prevent the misuse of public authority. E-government development also exhibits noticeable variation, with scores ranging from 0.25 to 0.63 (mean = 0.43; SD = 0.14), reflecting uneven

levels of digital government maturity across the region. Similarly, the governance quality index ranges from 38.42 to 65.80, with a mean score of 48.42 (SD = 8.45), suggesting that institutional quality differs considerably among ECOWAS countries.

Collectively, these descriptive patterns demonstrate that ECOWAS is characterised by heterogeneous governance conditions rather than a uniform institutional environment. Such variation provides a suitable empirical basis for examining whether differences in governance quality and e-government development are associated with differences in corruption control across member states. These findings also justify the subsequent correlation and regression analyses by demonstrating sufficient cross-country variation in the study variables.

Bivariate Relationships

Pearson correlation analysis was conducted to examine the bivariate relationships between e-government development, governance quality, and control of corruption across the twelve ECOWAS member states. As shown in Table 5, both explanatory variables exhibit positive and statistically significant associations with control of corruption, providing initial evidence in support of the proposed hypotheses. The correlation analysis serves as an initial assessment of the relationships before examining their combined association through multiple regression analysis

Table 4. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Control of Corruption	12	20.61	66.90	37.65	13.09
E-Government Development	12	0.25	0.63	0.43	0.14
Governance Quality Index	12	38.42	65.80	48.42	8.45

Source: SPSS analysis

Table 5. Pearson correlations matrix analysis

Variable	1	2	3
Control of Corruption	1		
E-Government Development	.641*	1	
Governance Quality Index	.953**	.614*	1

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

**Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS analysis

The results indicate that governance quality has the strongest positive association with control of corruption ($r = .953$, $p < .01$), while e-government development also demonstrates a positive and statistically significant relationship ($r = .641$, $p < .05$). In addition, e-government development is positively correlated with governance quality ($r = .614$, $p < .05$), suggesting that countries with more advanced digital government systems generally also exhibit stronger institutional performance (Akpan-Obong et al., 2023). These findings provide preliminary evidence that both governance quality and e-government development are associated with stronger corruption control across ECOWAS member states.

This pattern is reflected in the distribution of country-level data in ECOWAS. Cabo Verde, Ghana, and Senegal record comparatively stronger governance quality and higher levels of e-government development alongside better corruption-control performance. By contrast, Guinea-Bissau, Guinea, and Liberia exhibit relatively weaker governance quality and lower levels of e-government development, accompanied by poorer corruption-control outcomes. Although correlation analysis does not establish causal relationships, these patterns suggest that stronger corruption control is generally associated with countries characterised by both higher governance quality and greater e-government development (Sukarno et al., 2024), providing an empirical basis for the multivariate regression analysis presented in the next section.

Regression Results

Tables 6 and 7 present the results of the multiple regression analysis examining the collective association of e-government development and governance quality with control of corruption across the twelve ECOWAS member states.

The regression model demonstrates a strong overall fit ($R = .955$, $R^2 = .912$, Adjusted $R^2 = .893$) and is statistically significant ($F = 46.910$, $p < .001$), indicating that e-government development and governance quality are collectively associated with a large proportion of the observed variation in control of corruption across the sampled ECOWAS member states. However, given the cross-sectional design and limited sample size, the model should be interpreted as identifying institutional associations within the ECOWAS context rather than establishing causal relationships or producing estimates that are directly generalisable beyond the study setting.

Furthermore, Table 7 shows that governance quality is positively and significantly associated with control of corruption ($\beta = .89$, $p < .001$), indicating that countries with stronger overall governance systems tend to achieve higher levels of corruption control. By contrast, although e-government development exhibits a positive coefficient ($\beta = .09$), its individual effect is not statistically significant ($p = .49$) after accounting for governance quality. These findings indicate that governance quality exhibits the stronger statistical association with control of corruption, whereas the

Table 6. The model fit analysis

Model Summary			
R	R ²	Adjusted R ²	Std. Error of the Estimate
.955 ^a	.912	.893	4.283
a. Predictors: (Constant), E-Government Development, Governance Quality Index			

Source: SPSS analysis

Table 7. The coefficients results

	Unstandardized	Coefficients	Standardized Coef- ficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-33.39	7.523		-4.439	.002
E-government development	8.75	12.10	.09	.72	.49
Governance quality index	1.39	.194	.89	7.18	<.001
a. Dependent Variable: Control of Corruption					

Source: SPSS analysis

individual association of e-government development is not statistically significant after controlling for governance quality.

Regression Equation

Based on the estimated coefficients, the regression model can be expressed as:

Y= -33.39 + 8.75C₁ + 1.39C₂

Where:

Y = Control of corruption

X = E-government development

X₂ = Governance quality index.

Overall, the regression analysis provides evidence that governance quality is more strongly associated with control of corruption than e-government development within the estimated model. These findings complement the bivariate analysis by examining the joint association of the explanatory variables with corruption control across the sampled ECOWAS countries. The following section summarises the hypothesis-testing results and presents the model diagnostic statistics used to assess the stability and reliability of the estimated regression model.

Hypothesis Testing and Diagnostic Analysis

Table 8 summarises the hypothesis-testing results together with the diagnostic statistics for the estimated regression model. The Pearson correlation analysis indicates that both e-government development and governance quality are positively and significantly associated with control of corruption, providing empirical support for the two proposed hypotheses. In addition, the diagnostic statistics were examined to

evaluate the suitability of the regression model and the independence of the explanatory variables.

The diagnostic statistics indicate no evidence of problematic multicollinearity in the estimated regression model. Both explanatory variables record tolerance values of .624 and VIF values of 1.60, which are well within commonly accepted thresholds for regression analysis (Kumar, 2023), indicating that the predictors do not exhibit excessive linear dependence. These results support the stability and interpretability of the estimated regression coefficients and provide a reliable basis for examining the relationships between e-government development, governance quality, and control of corruption across the sampled ECOWAS member states.

Discussion

This section should be interpreted as institutional associations, and not as indicators of causal relationship. Through an analysis of the empirical findings, the discussion will critically engage with the literature on governance quality, e-governance, and corruption control. The empirical findings indicate that corruption control within ECOWAS is more related to governance quality than on e-government development. While both the variables have positive relationships, governance quality comes out to be a more prominent institutional correlate, thus implying that success in anti-corruption efforts is mainly contingent upon the overall institutional framework in which digitalization is taking place. It should be noted that neither of the two can be considered as alternatives, but rather as complementary elements of governance. These findings support the main argument of the paper, which states that corruption control depends on the interaction between e-government

Table 8. Summary of hypothesis testing and model diagnostics

Hypothesis	Pearson Correlation	Tolerance	VIF	Conclusion
H1: E-government development is positively associated with control of corruption in ECOWAS countries.	.641*	.624	1.60	Supported
H2: Governance quality is positively associated with control of corruption in ECOWAS countries.	.953**	.624	1.60	Supported

Source: SPSS analysis

development and governance quality, and not technological or administrative innovations alone. As such, improvement in digital governance without similar improvement in governance conditions cannot lead to corruption control.

Governance quality can be considered the institutional basis on which corruption prevention becomes possible. According to the authors, governance quality reflects the ability of public institutions to develop and implement policies, comply with the rule of law, guarantee regulatory consistency, and maintain political stability so that the government is responsible to citizens (Farooque et al., 2022; Al-Faryan & Shil, 2023). The aforementioned institutional aspects function as complementary elements of the governance system influencing the exercise of public power. When institutions are efficient, accountable, and governed by predictable legal and regulatory processes, there is little opportunity for the abuse of public power because public officials are subject to better monitoring and greater enforcement of rules and regulations (Chong et al., 2021; Nyeleker et al., 2025). Conversely, when institutions lack efficiency and accountability, they may hinder anti-corruption efforts irrespective of any other reforms undertaken (Chen & Aklikokou, 2021). This explanation is supported by earlier research, where it has been shown that governance quality provides such institutional arrangements through which integrity systems enhance each other's effectiveness (Gallego-álvarez et al., 2021; Yuliantini & Nurmandi, 2023).

E-government plays an important role in corruption control by changing the nature of public administration systems. E-government makes government procedures more transparent because it makes information and services available to the citizens and oversight bodies which helps in creating transparency in the activities of the government (Ha et al., 2024; Nambassa & Nurmandi, 2024). As public services become digitalised, they generate traceable electronic records of decisions, transactions, and administrative processes, enabling more effective monitoring, auditing, and accountability (Palmisano & Sacchi, 2024). Such records minimize the chances of hiding any discrepancies or manipulating the administrative process unnoticed. Moreover, digital tools provide for standardization of service delivery

and minimize bureaucracy because it minimizes the ability of an individual civil servant to deviate from official guidelines (Mahmoud et al., 2025). The automation of public services also decreases face-to-face interactions between citizens and public officials, thereby minimizing any corrupt activities like bribery (OECD, 2025; Esther & Rahayu, 2026). This is because e-government assists in combating corruption not because technology is an anti-corruption tool, but because it changes the way through which corrupt activities happen (Nambassa & Nurmandi, 2024).

Therefore, e-government cannot be regarded as a substitute for strong governance institutions. Although digital systems increase transparency, create administrative traces, decrease discretionary powers and cut down the amount of citizen-to-public official interaction (Palmisano & Sacchi, 2024), such practices do not necessarily lead to better anti-corruption practices (Waheduzzaman & Khandaker, 2022). Digital information can hardly be used if public institutions have no power and willingness to detect irregularities and impose regulations on public officials (Chen & Aklikokou, 2021). In cases where governance is weak, the adoption of ICT will be just a digital replication of conventional approaches without considering the motivating factors that contribute to corruption (Mahmoud et al., 2025). This interpretation is consistent with research done in West Africa, where e-government development has been inconclusive because of the inadequate efforts towards institutional reform compared to technological advancements (Akpan-Obong et al., 2023; Noah & David, 2024). In fact, e-government is not designed to substitute governance institutions but is rather a tool to reduce opportunities of corruption only if the whole environment is favorable for doing so.

Furthermore, ECOWAS' experience demonstrates how the quality of governance affects digital government reform efforts. Countries such as Cabo Verde, Ghana, and Senegal, which have comparatively higher governance quality and e-government development, also have better control of corruption. These countries have incorporated digital reforms in their public administrations through relatively efficient public bureaucracy, good accountability measures,

and strong regulations and laws that have made digital technology useful in overseeing administration and providing services to citizens (Noah & David, 2024; Mahmoud et al., 2025). In contrast, Guinea, Guinea Bissau, and Liberia still have problems of institutional capacity, regulation implementation, and administrative efficiency that limit the anti-corruption impacts of digital reforms. Such a juxtaposition indicates that the differences in the anti-corruption performance between ECOWAS countries do not stem from the use of digital technology per se but rather from the governance context where this technology is used (Akpan-Obong et al., 2023). Digital-government initiatives therefore appear to be most effective when embedded within institutional environments capable of enforcing accountability, implementing reforms consistently, and translating technological innovation into improved governance outcomes.

Prior research has proven beyond any doubt that governance quality and e-government help control corruption through distinct institutional mechanisms. Governance literature highlights the relevance of such concepts as accountable institutions, efficient public administration, regulatory quality, and the rule of law in controlling abuse of public office (Huque & Jongruck, 2018; Mahmoud et al., 2025), while the literature on e-government revolves around the role played by technology in increasing transparency and administrative accountability through decreasing possibilities for discretion (Yuliantini & Nurmandi, 2023; Sukarno et al., 2024). The present study confirms these findings in the ECOWAS's context but also advances the current state of knowledge in two significant ways. Firstly, unlike previous studies that tend to treat these two factors separately, the current research brings together e-government development and governance quality under the same conceptual framework. Secondly, the study shows that the anti-corruption role of digital government is mediated by the quality of the surrounding governance system. The implications of the above findings are that digital government ought to be viewed as a supplementary governance tool.

In this paper, the researchers propose a governance system approach to anti-corruption policy as it becomes clear from the results that the efficiency of

digital government depends on governance institutions. The two factors – e-government development and governance quality – do not substitute each other; rather, they complement one another forming a wider governance system framework. Digital tools make public activities more transparent and efficient, but these instruments help in corruption prevention only in presence of strong institutions. Therefore, the anti-corruption potential of e-government should be seen as institutionally conditioned, and not technologically determined. Such an approach builds on previous governance literature by considering governance quality as the necessary institutional condition that allows digital reforms to bear fruit in terms of accountability. It is not technological innovations or institutional reform per se that enables corruption control, but the combination of the two.

Policy Recommendation

The results indicate that the anti-corruption policies in ECOWAS would probably prove to be more effective in cases where digital government measures are introduced as a part of a wider effort towards improving governance. While e-government may enhance transparency and traceability as well as improve administrative performance, digital tools can only prevent corruption where there are good institutions, strong regulations, and reliable accountability systems in place. It would be wise for policymakers to pursue digitalization as a part of a broader process of institutional reform rather than a separate technocratic reform. This integrated model calls for concurrent investments in both technological infrastructure and public sector capacity. Regionally, ECOWAS can assist member countries through the development of common standards in terms of governance, knowledge sharing, and institutional capacity for digital governance and anticorruption. This approach to governance, which is more integrated, will have greater chances of success in combating corruption compared to a purely technological approach.

Conclusion

This research analyzed the relationship between e-government development, governance quality, and

control corruption in ECOWAS countries. It has been proved that both e-government development and governance quality have positive correlation with corruption control, but the latter has higher institutional impact. Thus, all together, this proves the fact that the corruption control should be considered as an integral part of a governance system where digital governance and institutional quality complement each other.

This study contributes to the existing literature by proposing a governance systems perspective to tackling corruption. The results show that while e-government and governance quality seem to be different concepts to explain corruption control, they can actually complement each other, since the impact of digital tools depends on the institutional context in which they are implemented. This is because e-government increases transparency, traceability, and consistency of administration while minimizing discretionary decision making and chances for corruption. The above notwithstanding, cannot act as substitutes for weak governance institutions. Instead, the role of digital technologies in the fight against corruption is contingent on governance quality through which digital information is transformed into oversight, enforcement, and accountability mechanisms. Corruption control is thus an outgrowth of the synergy between digital-governance capabilities and institutional quality.

Practically, the implications of the study reveal that any efforts to curb corruption in the ECOWAS region will need to ensure that digital transformations are included in the broader governance reforms. Policymakers will need to undertake both e-government reforms and other efforts to improve governance quality. The two will need to work together since they have mutual effects on each other.

Several limitations should be acknowledged. The study relies on a cross-sectional dataset covering the twelve active ECOWAS member states and therefore captures institutional relationships at a single point in time. The relatively small sample limits statistical power and the generalisability of the findings beyond the regional context. Although the governance quality index reduced collinearity among the governance dimensions, its composite structure

does not permit assessment of the unique contribution of each governance component. Furthermore, the use of aggregate national indicators may overlook within-country variation and informal governance practices. Future research should employ longitudinal, panel, or mixed-methods designs to validate these findings across broader institutional contexts.

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