

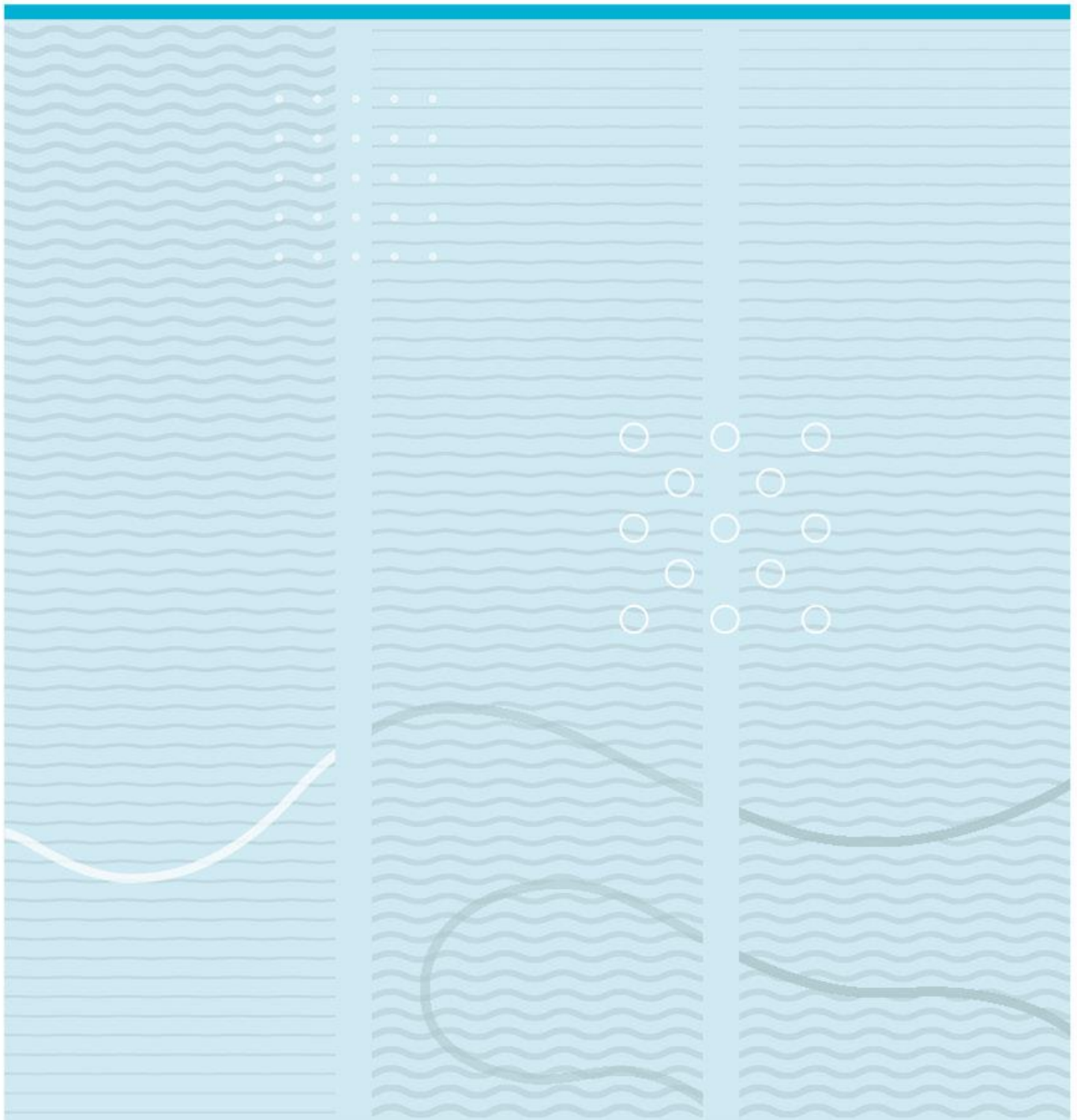


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Trust In E-Government Adoption in Sub Saharan Africa: Understanding Trust in E -Government Adoption by Citizens (Tertiary Students) Of Ghana



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This thesis is worth 30 study points

Acknowledgement

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Abstract

Electronic government is changing the way governments operate, and nations across the globe are beginning on an e-Government journey to provide online services to citizens. Numerous people, such as scholars and policy makers, see e-government as a dynamic technological medium, a mechanism of interaction that has the capacity to increase public preconceptions of public service delivery and possibly change the lengthy declining trend in citizen trust in government.

Governments are actively investing on technology, and determining success extends beyond implementation. Developing countries, in particular, desire development, thus the acronym ICT4D (information and communication technology for development). E-government is used for much more than simply changing the way governments carry out operations and activities. E-government initiatives may also involve the development of an enabling environment for e-government to thrive, as well as the provision of socioeconomic advantages such as cost savings and increased citizen participation. E-government, in a nutshell, is an ICT endeavor used to promote development (ICT4D).

This aim of this research is to study the level of trust of e - government by Ghanaians and how it results in its adoption. This will help policymakers further understand citizen characteristics that are crucial for increasing trust and, as a result, the use of e-government services, hence an increase in e-government adoption. To assess whether individuals trust e-government and how trust in e-government influences intention to use, a nine-construct model is proposed. The approach was tested using 200 survey questionnaires distributed to Ghanaian tertiary students who utilize e-government. To support the quantitative data, a semi-structured interview was also undertaken.

According to the findings, Ghanaians trust their e-government, and trust in e-government has a strong effect on intention to use, and therefore adoption. The findings also show that Ghanaians trust e-government when they find it beneficial, and the website's quality is excellent. Other significant elements shown by the results that are crucial for trust in e-government include citizens' trust disposition, trust in institutions, and perceived ease of use of e-government systems and services. Familiarity with e-government had no significant impact on trust.

Keywords: Electronic government, ICT for development (ICT4D), E-Services.

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1 INTRODUCTION

Governments and countries around the world, including Ghana, have been trying to harness the immense capacity of information and communication technology to transform government processes. E-government as defined by the World Bank (2018), is “the use by government agencies of information technologies (Wide Area Networks, the Internet and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government.”

Current developments show that the services offered by Electronic Government (e-Government) are beneficial in achieving good governance goals. About every part of a person's life is founded on trust of some form or another. Trust is defined by Rotter (1967) as an “expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon”. Owing to a lack of trust in the security of internet transactions and concerns about the use of information submitted electronically, many people could be hesitant to use e-government services. ICT can only be used efficiently if it is trusted (Gatautis, 2008). As a result, the effectiveness of e-government initiatives is heavily dependent on how much the intended audiences for such services, citizens in general, use them.

Ghana is a country on the African continent that is part of the West African sub - region. According to Our World in Data, the total number of Internet users (people who have access to the internet) in Ghana was 9.78 million thus (34.67%) of the total population (Roser, 2015). Ghana ranked fifth in the United Nations' E-government readiness study 2020 in West Africa and 101st out of 197 countries on the planet (United Nations, 2020).

Ghana launched the eGhana project from 2006 in partnership with the World Bank, which is an e-government development that aims to improve the efficiency and transparency of selected government functions through e-government applications. This research presents a way to assess citizens trust in e-government to warrant adoption.

On a fundamental level, this thesis is concerned with two major issues. Ghana and Trust, where Ghana signifies the country's E-Government and Trust represents citizens' trust and confidence in the E-Government. ICT4D serves as a liaison to explain this occurrence (Heeks, 2010). ICT4D, or the use of information, communication, and technology for development, is a criterion that E-government perfectly matches, and in order to accomplish this

development, citizens must first trust it to allow for acceptance and utilization. In this study, the ICT is e-government, the context is Ghana (Ghana here have an eGovernment initiative called eGhana), and the dependent element that would enable for adoption and application to ultimately achieve development is trust. E-government facilitates development by bridging the digital divide, reducing bribery and corruption through transparency and accountability, saving money through efficiency, and lowering illiteracy rates through the creation of an enabling environment to support ICT infrastructure and citizen participation (World Bank Group, 2018).

This aim of this research is to study the level of trust of e - government by Ghanaians and how it results in its adoption. This will help policymakers further understand citizen characteristics that are crucial for increasing trust and, as a result, the use of e-government services, to increase e-government adoption, enhance relations with citizens, move up the e - government readiness index and reap all the socio-economic developments that come with e-government.

1.1 Background

E-government has the potential to improve the delivery of a wide range of public services and it has the potential to increase government-citizen communication which enables for more citizen participation in government decision-making (Thomas & Streib, 2003). Ghana, as a developing nation, learns from developed countries' adoption and implementation of e-government and, as a consequence, puts measures in place to adopt and use e-government to allow effective delivery of public services.

The eGhana Project was launched by the Ministry of Communication in conjunction with the World Bank to build Ghana's e-government (World Bank Group, 2013). The eGhana Project was created to aid in the implementation of a government-led ICT development agenda. The three key components of the eGhana initiative were creating an enabling environment, supporting local ICT enterprises, and the use of e-government applications and communications (Ministry of Communications, 2013).

The latter, the utilization of e-government applications and communications, is the focus of this study. The government's aim to bring services and information to residents' doorsteps

resulted in the creation of several applications and platforms. To aid with this, a national data center was constructed to act as a repository for data storage and administration.

The government of Ghana established online service portals to act as a one-stop shop for all services and information provided by all government departments to both businesses and citizens as a whole (Ghana.GOV, 2021). An e-payment platform was also built to allow citizens to pay for all services and transactions completed via the e-service site (Ghana.GOV, 2021).

To enable a seamless and effective implementation, the whole e-government project establishes the required legal and regulatory framework, and also appropriate ICT policies and economic measures, as well as a solid ICT infrastructure (Mensah, 2016). Trust was one aspect of the implementation that was overlooked. Thus, the purpose of this study is to determine if Ghanaians trust e-government in general, the significance of citizen trust in e-government, and how it affects utilization.

1.2 Statement of Problem

Covid 19 has infiltrated every part of our lives, and during lockdown and quarantine, when governments were providing updates and information to people across a variety of mediums, interesting discoveries regarding e-services were made. Furthermore, majority of government and public interactions and relations are shifting to electronic channels. In Ghana, the government communicated updates, restrictions, and progress through official government websites and government television stations. State agencies in Ghana like the National Commission for Civic Education (NCCE) reports accounts of citizens who did not trust the government and the information that were being provided during the time (NCCE, 2020).

1.3 Purpose of Study

The purpose of this dissertation is to investigate citizen trust in e-government and how it affects adoption. The thesis focuses on Ghanaians' trust in e-government in order to justify adoption. In the long run, the goal is to assist the government and policymakers in understanding the perspectives of citizens, and thus the characteristics that are critical for increasing trust, intended to facilitate them in making changes to flaws, becoming more transparent, and increasing use cases in order to achieve the primary goal of incorporating the electronic government in the first place.

1.4 Research Question

In light of this, as well as the completion of the e-government project (eGhana), and the need for a better understanding of how trust influences e-government uptake in Sub-Saharan Africa, the following question has been posed:

- How do citizens' views of trust impact their utilization of e-government services?

1.5 Significance of Study

E-government is a subset of Information and Communication Technology for Development (ICT4D), where the major focus is on the transformational potential of ICT rather than its adoption and spread. This research investigates the trust of citizens, notably tertiary students, in e-government in a Sub-Saharan African nation (Ghana). In its core, ICT4D research is very contextual (Prakash & De', 2007), relying on the local circumstances, the people involved in development, and the events that occur. As a result, this context offers fresh knowledge to the discipline and to the field of information systems research in general. Furthermore, the findings of this study will assist policymakers in better understanding the characteristics of citizens that are critical for increasing trust and, as a result, the use of e-government services, which will increase e-government adoption, improve relations with citizens, and move the e-government readiness index higher.

1.6 Research Structure

This paragraph summarizes the thesis for the reader's convenience; it is separated into seven major chapters, beginning with Chapter 1, and ending with Chapter 7. As previously stated, Chapter 1 introduces and contextualizes the thesis. The study next examines relevant literature (Chapter 2), providing a literature analysis that emphasizes key concepts and explanations. The research model is proposed in Chapter 3 and the hypothesis is presented. Chapter 4 will give an account and clarification on the strategies, choices, procedures, and theories used to conduct our research. Chapter 5 discusses our findings and analyses the data we gathered. Discussions, consequences, limitations, and recommendations for further study are included in Chapter 6. Chapter 7 concludes the research.

2 LITERATURE REVIEW

This chapter of the thesis examines relevant literature, offering a literature analysis that highlights critical concepts, explanations, and theories. The main constructs which are E-Government and Trust are reviewed in this chapter. This chapter will also discuss the role of information and communication technology for development (ICT4D), as well as how e-government fits into that picture.

2.1 Information and communication technology for development

ICT4D researchers and professionals are always studying how to use ICT to create the greatest possible world (Walsham, 2012), trying to understand how it may contribute to sustainable development for countries and their people. Academics in ICT4D do this in at least two main ways: by increasing knowledge about ICT4D and by offering practical contribution to development (Walsham, 2017).

Over the years, significant investment has been made in electronic government (eGovernment). The question of how to quantify success is complicated by the fact that eGovernment's aims transcend implementation - especially, in developing countries, it is anticipated to generate development. ICT4D stands for information and communication technology for development; studies in this field are focused with how ICT might promote socioeconomic development (Walsham 2017). We will use the term development to refer to a "big improvement in folk's living conditions".

According to Heeks (2010), ICT4D is the use of all information and communication technologies, including networks, software, and hardware, as well as the services and applications that go with them, to aid in development. Development in this context includes bridging the digital divide, economic development, sustainable living, and improving capacities and realized functions. According to Thapa and Hatakka (2017), who study ICT4D by concentrating on the technology itself, in order for users to use ICT, they must perceive and realize ICT to be inexpensive. They go on to say that comprehending what action possibilities consumers seek in a technology, as well as effective information transmission, go a long way toward creating affordance impressions.

Concentrating on development entails considering how creating and deploying ICTs might help to bring about such improvements. Since government frequently assume a prominent

role in several developing nations, ICT investment and initiatives in government, now commonly referred to as eGovernment, are expected to play a key role in development. In this case, e-government can lead to bribery and fraud reduction, improved accountability, increased flexibility, revenue growth and reduced expenditure. This is accomplished by enhanced citizen service delivery, improved engagement with firms, citizen empowerment through information access, or more effective governance administration (World Bank Group, 2018).

2.2 E-Government

According to the Information Society Commission (2003), E-government is a fundamental revolution of government, technology, and administrative systems that has the ability to revolutionize services and information delivered to citizens. It is more than just automating government functions and publishing public data online (2003).

E-government is the use of contemporary technology by a state, particularly the internet and website applications, to facilitate or reinvent existing and/or prospective (information, interaction, and transaction) relationships with 'stakeholders' in the community in which it operates in order to generate additional value (Bekkers, 2003; Moon, 2002). Additional value may well be realized in improving government access, improving service delivery quality, encouraging internal efficiency, promoting public and political responsibility, and expanding citizen political involvement. Citizens, businesses, society groups, other government entities, and civil officials are among the stakeholders mentioned (Gartner, 2000; Chadwick & May 2003).

E-government as a restricted notion, refers to digitized government tasks and entities; whereas in a larger context, it refers to the digitization of all relations, whether state or non-state, that contribute to government entities' services and policy-making activities. (Coe, Paquet, & Roy, 2001; Saxena, 2005). Pina et. al 2010, posit that e-government is the state's use of digital technology to enhance the way services are delivered and to modify the working process and efficacy of government.

The conventional administrative model is giving way to an e-government paradigm marked by increased integration, cooperation, and citizen participation (Bonsón, et al., 2012).

E-governance has quickly become ingrained in government processes. In fact, it would be extremely difficult to find a sector of government that did not make use of digital technology in some way.

Al-Naimat et al. (2012), categorize e-government into four straightforward definitions.

- **the liaison between the government and the citizens (G2C)** - It is a connection built between the government and the population to enable them to make use of all the advantages provided as public services. Within this group, the state delivers services and conveys them straight to the people; these services comprise, but are not exclusive to, healthcare, education, transport, and job opportunities.
- **the interaction between government agencies and private firms (G2B)** - incorporates service providing while assisting the business community. Firms and commodities suppliers may connect with the government in a seamless manner, lowering costs and allowing for more transparency and accountability at all stages.
- **the interaction of governmental institutions including national, regional, local, and other international governments (G2G)** - To meet the requirements of citizens, the government rebuilds internal governmental processes and procedures and evolves it into a linked entity by establishing an integrated back-office. This type of interface increases the availability of public services while also increasing the quality of those services.
- **the connection established between the government and its workforce (G2E)** - where the government offers workers with the necessary retraining and data accessibility to help them with their daily responsibilities, and aids in strengthening organizational responsibility, optimizing limited resources, and improving public services.

2.2.1 The E-Government Triangle

According to (Axelsson, Melin and Lindgren) 2013, it is critical to ensure that we properly understand e-government stakeholders in order to effectively tailor e-services offered to them. E-government may be divided into two broad categories: supply side and demand side. The supply side is concerned with government activities, whereas the demand side is concerned with peoples' acceptance (Lim et al., 2012). Governments can carry out their

functions as needed, but much depends on citizen acceptability, thus usage of e-government services and efforts to accomplish the necessary objectives. According to Warkentin et al. (2003), who have researched e-government adoption, for people to accept e-government programs, citizens must have the intention to participate in e-government, which is the intention to obtain and provide information. The study goes on to argue that before accessing an electronic service, consumers consider both the features of the web vendor and the features of the supporting technical infrastructure. E-government does not materialize all at once; it is implemented in stages until it is completed. Figure 1 depicts an e-government orientation triangle, which is a refined manner of displaying the phases of e-government implementation as proposed in the maturity model by (Gartner, 2000)

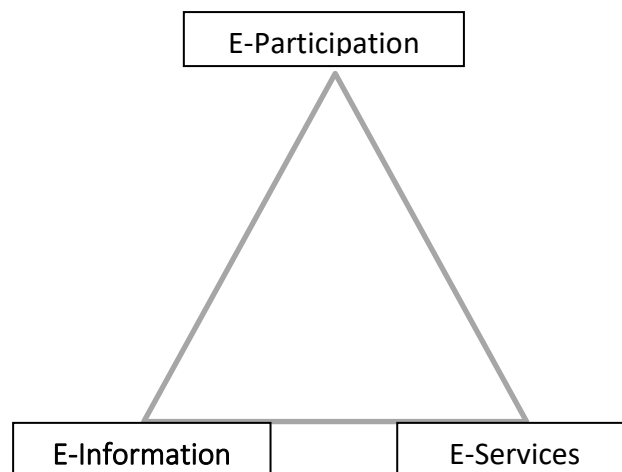


Figure 1. The triangle of e-governance orientation.

Adopted from Manoharan et al., 2020

E-Information is a digital presence that supplies public audiences with useful information (Manoharan et al., 2020). It's worth to the public, which in this case is (G2C and G2B), is that state information is made readily accessible, procedures are explained, and therefore consensus and service are improved. The government can also use the intranet to disseminate information internally (G2G). This stage is all on gathering information.

E-Services, Various apps and platforms are used to encourage contact between the government and the public during this period (Manoharan et al., 2020). People can make inquiries by email and download various forms and files 24 hours a day, seven days a week. Entire transactions can be completed without visiting an office. For example, reporting

and submitting income taxes, renewing licenses, permits, visas, and voting online. E-procurement, tax payments, and license applications with the government are valuable to companies (Ahmed, 2009). Usually, this can only be feasible at a desk or countertop between business hours. These features help you save time and is cost effective (Ahmed, 2009). The crux of it is that efficiency and effectiveness are increased.

E-Participation, this is where people have embraced and are utilizing e-government, resulting in a personalized website or platform with integrated personal and company accounts for all services (Manoharan et al., 2020). At this level, there has been a complete revolution, with all information systems connected and the public is able to obtain G2C and G2B services from a virtualized counter. The overall objective is to have a single point of contact for all services.

2.3 Online Trust

Abu-Shanab and Al-Azzam (2012) argued that the gate to e-government adoption is trust. If citizens and businesses trusted e-government, then they will use it. Propensity to trust is a trait that comes up regularly in studies on e-government trust (Belanger and Carter, 2008; Colesca, 2007). These studies suggest that people who have a higher proclivity for confidence in general seem to have a higher level of trust in e-government. Existing information systems studies on trust has emphasized similar major issues, some of which are listed in the following review: (1) What exactly is trust in the internet world? (2) Why is trust important in online activities? (3) What are the causes and consequences of trust in the online environment?

2.3.1 Concept of trust

Grandison and Sloman (2000) describes trust as a strong belief in an entity's ability to function dependably, safely, and consistently within a given context. Due to the complexity of trust, it has been described from different perspectives in research. The human computer interaction perspective (Riegelsberger et al 2005; Lee et al 2000) explores the connection between user interface architecture, device usability, and user responses. There is the technological approach (Misztal, 1996; Fukuyama, 1995), also, which centers on innovative technology adoption.

Three primary viewpoints on trust is found in the literature on internet trust. The first point of view adheres to the premises of the Theory of Reasoned Action (Ajzen and Fishbein, 1972). They describe trust as the idea that the other online participant will act responsibly; The conviction that someone can depend on the other's pledge and that the other, under unexpected situations, would act with benevolence and in a pleasant manner toward oneself. (Gefen & Straub 2003, Kim et al. 2004, Pavlou 2003, Suh & Han 2003)

The second viewpoint holds that, trust is the readiness or desire to rely on the other online party, and hence the willingness to expose oneself to the activities of the trusted person. (Bart et al. 2005, Belanger et al. 2002, Gefen 2002)

The third point of view considers trust as the result of reasonable examination, where reasonable examination means one party's personal estimate that another party will undertake a certain activity in accordance with his or her optimistic expectations, in a context, or from a perceived trait. (Ba & Pavlou 2002, Pennington et al. 2003)

2.3.2 Why is trust important in online activities

The fact that threats and unpredictability are discerned in the online environment is the primary factor why trust is vital for online activities and exchanges. Luhmann (1979), suggests that trust is a strategy for reducing social complexity. Furthermore, trust in internet activities is frequently claimed to be a risk-mitigation strategy in the online world (Jarvenpaa et al. 2000, Lee & Turban 2001, Pavlou 2003).

2.3.3 Causes and consequences of trust in the online environment.

A further major study topic in the literature on online trust is antecedents of online trust. Online trust antecedents may be divided into three groups: (1) user traits, (2) website characteristics, and (3) contextual elements (Shankar et al. 2002).

- Attributes of the trusting party in an online world are referred to as user characteristics. The user's trust disposition (Mayer et al. 1995) and an internet user's previous experience are included in this category of trust antecedents (Gefen et al. 2003)
- The subsequent set of online trust antecedents looks at the qualities of the online trusted party, which includes the online party's traits. The IT features of a website

have also been linked to online trust. The perceived quality of a website is one of these IT attributes (Kim et al. 2004, McKnight et al. 2002b)

- Aside from customer and web/platform features, a variety of circumstantial factors have been connected to the development of online trust. Earlier studies in the context of e-commerce suggests that a client willingness to trust a website or platform are linked to variables such as the online company's prominence (Pavlou 2003), the company size (Jarvenpaa et al. 2000), and the safety of the Digital infrastructure (Lee and Turban 2001).

Online user satisfaction (Balasubramanian et al. 2003) and trust-related behavioral intention (Liang et al. 2005, McKnight et al. 2002b) are usually the dependent variables in IS research on trust, making them the study's conclusions and repercussions. Furthermore, people's perceptions of key website elements have been proven to be influenced by their level of trust (Pavlou, 2003).

2.4 Trust in E-Government

Trust in an agency (organization) has a significant effect on technology (Gefen et al. 2005). People must assume that the government has the administrative and technological capabilities to enforce and protect e - government initiatives before they can trust them. Yao-Hua Tan (2000), propose that trust has two key objectives: the party delivering the service (entity trust) and the medium by which it is delivered (control trust). As a result, trust in e-government includes both the conventional view of trust in an agency (government trust) along with trust in the integrity and consistency of the enabling technology (trust of the Internet) (Bélanger and Carter, 2005; Pavlou, 2003). Trusting beliefs that an e-government Web site will act responsibly when a citizen visits or transacts with it are central to e-government success.

According to Sitkin and Roth (1993), trust is a set of expectations that activities will be completed dependably. So, in the context of technology, faith in technology is trusting that the technology can be utilized to achieve the intended objective properly. In the case of e-Government, it becomes clear that people' faith in the government is required but not sufficient for its successful acceptance and usage. Citizens must also have a high level of faith

in the technology and its capabilities in order for it to be adopted and so succeed. Citizens' trust, which leads to the adoption and usage of e-Government technologies, thus has two dimensions: trust in governments and trust in technology.

2.5 Trust in Government

Trust of the Government (TOG) can be defined in terms of perceived government value and usefulness, perceived worthiness, and overall trust disposition. For instance, trust in government agency's ability to keep citizens interest in mind and provide useful information. Trust is an important factor influencing the success of e-government projects. Governments should build trustworthy relationships with citizens before attempting to open such e-channel with them (Warkentin et al., 2002). Similarly, governments need to build trust within agencies, between agencies, across governments and with businesses, and non-governmental organizations (Almarabeh and AbuAli, 2010). In the Jordanian context, a study that qualitatively analyzed results from a set of semi-structured interviews with e-government officials concluded that trust is an important factor in the success of m-government initiatives and is considered a major challenge and barrier to the adoption of such service (Al-Hujran, 2012).

2.6 Trust in Technology

Trust of the Internet (TOI) will be defined in terms of trust in technologies and citizens privacy concerns. For example, belief that the internet is safe and secure enough to transact online business with state government agencies. Trust in the other party online is necessary, but not sufficient, for Web site users to form the belief that tasks will be completed successfully in the online environment. There are also concerns about the reliability of the Internet infrastructure.

Al-adawi and Morris (2008) contends that because of the anonymous aspect of the internet world, the widespread use of technologies, and the vagueness and threat of using an open infrastructure, citizens' trust in e-government has certain special characteristics. People's perceptions about cybersecurity and trust in electronic systems led to a lack of trust, which

was found to be a major obstacle to the implementation of e-government (Cremonini and Valeri, 2003).

When citizens have low trust in the government's ability to carry out e-government services, combined with low trust on the internet, they become the government's and technology's enemies (Srivastava & Thomson, 2005). This is not a favorable environment for the adoption or progress of e-Government initiatives. Furthermore, people can use technology as a mechanism to compete with the government, when trust in the government is low but trust on the internet is high (Eynon, 2007). Intention to use e - government programs under these circumstances are volatile and unreliable. On the other hand, a higher trust in the government paired with a low trust on the Internet suggests that people will try to comply with e-government projects, but their lack of trust in technology will impede this cooperation (Srivastava & Thomson, 2005). When the trust level of the government by citizens is high and the trust of the internet is also high, it leads to a great government – citizen collaboration which results in high adoption rates (Srivastava & Thomson, 2005).

2.7 Summary and Contribution

We examine e-government as a type of ICT for development that reduces corruption and improves accountability and transparency. This is achieved by improved citizen service delivery, more interaction with businesses, citizen empowerment through information access, or more effective governance administration. This study defines e-government and its different kinds (G2C, G2B, G2G, and G2E), as well as the e-government triangle, which outlines the various procedures and phases of implementation. The significance of online trust is emphasized, and some consequences of online trust highlighted include intent to use, re-use, and satisfaction. Trust in technology, trust in government, and perception of website qualities are the key constructs of trust in e-government identified in the literature.

The literature on E-government is heavily dominated with cases from developed countries as the narrative from African countries and other developing countries are scarce. In its core, ICT4D research is very contextual (Prakash & De', 2007), relying on the local circumstances, the people involved in development, and the events that occur. As a result, the sub-Saharan

African context of this paper offers fresh knowledge to the discipline and to the field of information systems research in general. Furthermore, the findings of this study can serve as a guide and literature for policymakers from African countries and other developing countries during implementation and review of E-government projects.

3 RESEARCH MODEL AND HYPOTHESIS

This study suggests an exploratory model of trust in the adoption of e-government. The proposed model is shown in Figure 2 below. The model proposed is based on two theories. The theory of reasoned action (TRA) which was developed by Ajzen and Fishbein (1972) and technology acceptance model (TAM) (Davis, 1989). TRA is a common behavioral model of psychology that is used to predict human behavior, and it notes that perceptions influence intentions, and intentions influence behavior (Ajzen and Fishbein, 1972). According to the Technology Acceptance Model (TAM), behavioral intention is influenced by two aspects of novel technology: perceived utility and perceived ease of use.

The study model (as shown in Figure 2) is comprised of nine elements that define the idea of citizen trust in e-government. The model attempts to bring together a significant number of elements known to impact people's trust in e-government. These features were gathered from several trust models suggested in the literature. This study model has two goals: to define the elements that contribute to citizens' trust in e-government and to explain how citizens' trust affects their desire to engage in e-government. The suggested model relates to the Government-to-Citizen (G2C) scenario and defines the roles of key components in the development of e-government trust. The theoretical review from which each component is developed is presented below.

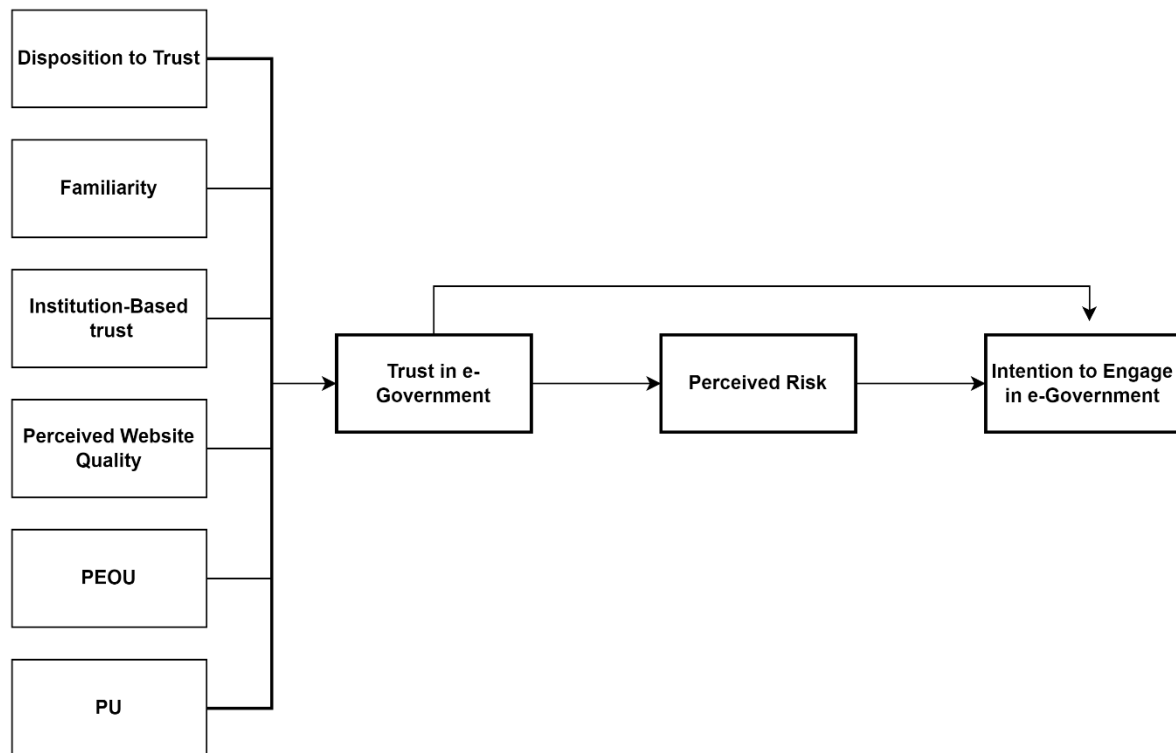


Figure 2: Research Model

3.1 Disposition to Trust

Disposition to trust can be defined as the “propensity or tendency to believe in the positive attributes of others in general” (D. H. McKnight, Kacmar, & Choudhury, 2004). According to Rotter (1971), people vary in their willingness to trust another party, whether that party is an individual, a team, or a corporation. McKnight and Chervany (2001) defined trust disposition as the belief that individuals are typically honest, well-intentioned, and reliable and that, regardless of other people's integrity, engaging with other people will result in better outcomes. In other words, trust others until they prove the trustor is incorrect.

According to research, trust disposition has a major influence on trust in an online setting (McKnight et al., 2004; Warkentin et al., 2002). Individuals who trust others will trust organizations involving people, such as internet retailers (McKnight et al., 2004). As a result, consumers' trust in e-commerce is positively related to their trust disposition (Kim & Kim, 2005). In terms of e-government, it has been proposed that having a trusting disposition or propensity to trust increases e-government trust (Warkentin et al., 2002). As a result, the following hypothesis emerges.

H1: Citizens' disposition to trust is positively associated with trust in e-government.

3.2 Familiarity

According to Gefen (2000) when individuals utilize their past exposure (Luhmann, 1979), encounters, and knowledge to grasp how people do what they do, it is referred to as familiarity. Luhmann (1979) posits that familiarity is a prerequisite for trust, and trust takes place in a familiar world where the familiar aspects of the world may alternate, affecting the tendency to develop trust in personal relations (Luhmann, 1998). Since the e-government environment differs from the conventional government environment, the impact of familiarity variation on trust is critical in understanding e-government trust. As a result, most people who are unfamiliar with the e-government environment, particularly in the initial phases of e-government, will have an impact on citizens' trust in e-government.

H2: Citizens' familiarity with e-government positively affects trust in e-government.

3.3 Institution-based trust

It has been stated that institution-based trust is suitable for digital services since safe internet transactions are carried out under the supervision of a third party who represents an institutional framework (Pavlou & Gefen, 2004). McKnight and Chervany (2001) define the term institutional based trust as a “subjective opinion that favorable conditions conducive to transaction success are in existence”. Institution-based trust can also be defined as a party's belief in the security of a situation as a result of assurances, support systems, and other mechanisms (Shapiro, 1987). As a result, the following hypothesis has been developed:

H3: Institution based trust positively affects trust in e-government.

3.4 Perceived website quality

Web sites are far more than just a user or graphical interface. The cornerstone of trust for most online transactions is, almost always, the nature of the connection between the

transacting parties. The perceived quality of a website may be separated into three categories: information quality, system quality, and service quality. (Teo, Srivastava & Jiang, 2008). The citizen's evaluation as to whether the information on the website is authentic, legitimate, and relevant is referred to as information quality. Websites are used by the majority of government agencies to declare and publicize their policies, goals, and activities. If trust is lacking, a citizen may have concerns about whether the state agency is releasing accurate and timely information and also whether this information is dependable on their own, or if there is some concealed specific agenda besides the long-term interests of people. As a result, trust will vary depending on the perceived quality of information. Trust in an online retailer entail believing that they will take responsibility for ensuring technological dependability, resulting in a greater sense of system quality for that site. In this situation, trust signifies people's belief that the government agency would build and manage the website in a trustworthy manner. From the above, this hypothesis is formed.

H4: High perceived website quality positively affects citizens' trust in e-government.

3.5 Perceived Ease of Use and Perceived Usefulness

According to the Technology Acceptance Model (TAM), behavioral intention is influenced by two perceptions of new technology: perceived usefulness (PU) and perceived ease of use (PEOU) (Davis, 1989). PU measures the extent to which the customers feel that using the technology improves his or her work performance. PEOU assesses the customer's opinion of how simple and painless the system is to use. Previous studies have indicated that PEOU and PU have a favorable impact on e-vendor trust (Pavlou, 2003; Tang & Chi, 2005).

H5: PEOU of e-government website positively influences citizens' trust in e-government

H6: PU of e-government website positively influences citizens' trust in e-government

3.6 Perceived Risk

The fact that threats and unpredictability are discerned in the online environment is the primary factor why trust is vital for online activities and exchanges. Risk and trust are

inextricably linked; if there is no risk, there is no need for trust (Luhmann, 1988). According to Featherman and Pavlou (2002), consumer perceived risk has a detrimental impact on e-service adoption intention. Trust influences risk, which influences behavior (Gefen et al., 2003). Hence, the following hypothesis is formulated:

H7a: Citizens' trust in e-government negatively affects perceived risk.

H7b: Perceived risk negatively affects intention to engage in e-government

3.7 Trust in E-government

Trust in an agency (organization) has a significant effect on technology (Gefen et al. 2005). People must assume that the government has the administrative and technological capabilities to enforce and protect e - government initiatives before they can trust them. Yao-Hua Tan (2000), propose that trust has two key objectives: the party delivering the service (entity trust) and the medium by which it is delivered (control trust). As a result, trust in e-government includes both the conventional view of trust in an agency (government trust) along with trust in the integrity and consistency of the enabling technology (trust of the Internet) (Bélanger and Carter, 2005; Pavlou, 2003). Trusting beliefs that an e-government Web site will act responsibly when a citizen visits or transacts with it are central to e-government success. Trust beliefs, according to (Warkentin et al., 2002), lead to trust behavior; under this model, trust in e-government will drive individuals to engage in e-government.

H8: citizen trust in e-government positively influences intentions to engage in e-government.

4 METHODOLOGY

This chapter is crucial since it outlines how the study was carried out. The layout of this chapter is as follows: research philosophy, research design, research approach, research strategy, methodological choice, data collecting, and data analysis.

4.1 Research Philosophy

In most studies, it is critical to understand the core philosophy employed in the research (Saunders et al., 2009). Organizational research is primarily guided by four major philosophies: Positivist approach, Critical Realism, Interpretive approach, and Postmodernism/Pragmatism are among examples (Saunders et al., 2009). Critical realism is the philosophy used in this study. This concept is used since the nature of ICT4D research (which this research fits within) is very contextual (Prakash & De', 2007), based on the local circumstances, the people involved in development, and the activities taking place. The problem with positivism is that it does not account for context, whereas approaches such as interpretivism reject the notion of determining causality since they are concerned with subjectivity and meaning rather than fundamental dynamics (Thapa and Omland, 2018). Combining universal law and simple meaning, critical realism may offer a center ground. Critical realists contend that the reality is somewhat socially produced but not fully so (Thapa and Omland, 2018). Comprehending the social happenings connected with establishing new structures (e.g., novel Internet technology in an ICT4D environment) and analyzing the processes associated with such structures may be approached from a critical realism viewpoint (Volkoff & Strong, 2013)

4.2 Research Design

The study used a sequential explanatory design; thus, the quantitative technique was used first, with the data gathered and analyzed before moving on to the qualitative survey. However, the research approach included a full literature assessment, research model building, and pilot testing. Sequential exploratory design entails obtaining and analyzing quantitative data first, then acquiring and analyzing qualitative data (Onwuegbuzie et al., 2004). When evaluating data from both perspectives, the quantitative data is prioritized, and

the two perspectives are combined (Alloghani, 2019). In essence, a sequential explanatory design aids in the use of qualitative results to supplement and interpret quantitative data findings (Creswell et al., 2003).

Data collection, data analysis, integration of results, discussion of results, and drawing of conclusions based on quantitative and qualitative outcomes are among the processes that follow. The research workflow is presented in the figure below.

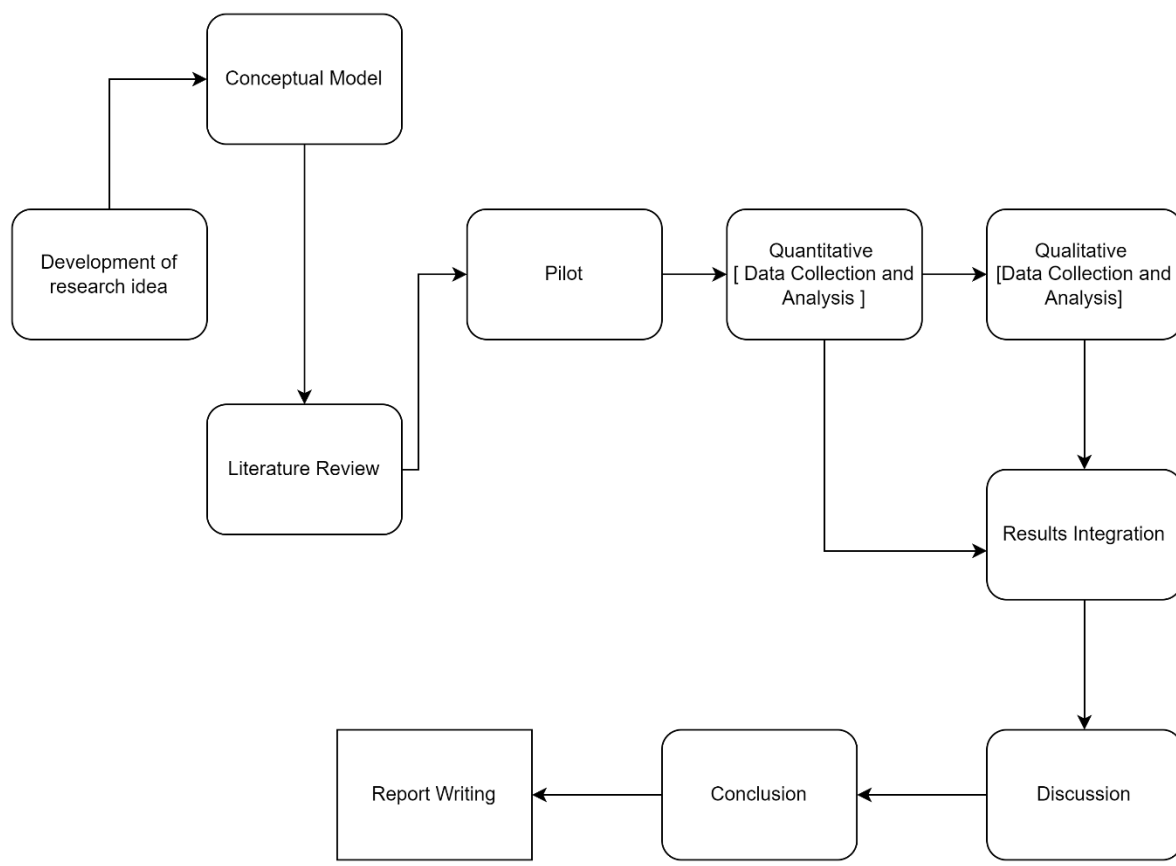


Figure 3: Research Workflow Diagram

The research began with a desk review, which included the formulation of the study objectives. The research concept arose from surfing the web and public opinion expressed on social media about some information from e-government websites. A conceptual model was then constructed and enhanced using a literature review. Gaps in the literature were identified, and a research question was developed. The workflow continues with the design and execution of piloting. The completion of the pilot research prepared the path for actual data collection and analysis. Following piloting, quantitative data was gathered and analyzed

before qualitative data was collected and analyzed representing the explanatory model of sequential design. These findings are combined, and conclusions are drawn. The qualitative data is utilized to augment quantitative results and contextualize them. The outcomes of both quantitative and qualitative methodologies intertwined during integration and ensuing discussion, and the research workflow concluded with report writing.

4.3 Research Approach

According to Saunders et al., the techniques on the second tier of the methodology include deduction, induction, and abduction (2012). The deductive approach is defined as commencing with the formation of theory from scholarly literature, then collecting data, and then designing a study to prove the theory that has already been formed (Saunders et al., 2012, p. 144).

The accessibility of credible and substantial literature is a critical condition for carrying out this method. On the other hand, an inductive method is described as beginning with data collecting and then developing a theoretical foundation. Furthermore, the abductive technique is a hybrid strategy that combines the inductive and deductive methods. The deductive technique is most suited for this research since there are underlying ideas and hypotheses in current literature done in many social contexts that may guide this study. In a deductive sense, the goal of this study is to establish whether Ghanaian citizens (tertiary students) trust e-government. Based on this, we developed a conceptual model and examined relevant material from websites, books, and other sources to refine the model and establish hypotheses. A questionnaire was created, data was collected and analyzed, and the findings were presented.

4.4 Research Strategy

The bridge connecting research philosophy and collecting data is the research strategy. The strategy of the research is critical in choosing the most effective way for solving the research problem and attaining the research's goal (Saunders et al., 2012). The ultimate objective is to use the research strategy to answer the research questions. Survey was used

as the research strategy. When adopting the deductive technique, a survey strategy is commonly used, since it allows researchers to obtain large quantities of data to answer the questions of who, what, where, when, and how about any given topic or issue (Saunders et al., 2012)

4.5 Methodological Choice

In general, there are two types of research methods: qualitative and quantitative. However, the two methodologies may be combined for superiority and increased performance of the conclusions drawn, as well as generalizability. This study applies both quantitative and qualitative research methods known as the mixed method. When the two methodological paradigms are combined, they yield knowledge that neither quantitative nor qualitative approaches alone can deliver. As a result, mixed methods research delivers a more comprehensive and in-depth grasp of the study topic. In this study, I employ mixed methods to obtain and analyze data by utilizing a quantitative approach via survey questions and a qualitative approach via an interview guide to supplement and derive meaningful inferences from the quantitative data and outcomes.

4.5.1 Quantitative Approach

When the number of respondents is large, the quantitative technique is the most effective way to measure data (Saunders et al, 2012). To analyze the data and generate meaningful results from the survey, the quantitative research approach was applied. Quantitative research focuses on applying statistical, rationality, and mathematics to generate numerical data (Allwood, 2011). Quantitative research methods are based on organized tools with specified metrics and variables that are established based on the research subject (Mahoney, 2009). Quantitative approaches are also objective and result-oriented, relying on numerical data to demonstrate causal linkages through statistical testing (Alloghani, 2019). As to the other definite elements of the statistical analysis methodologies utilized, generalization is simpler in quantitative research, and it adopts randomly selected sample size that represents the target population (Mahoney, 2009). To analyze the data and develop meaningful conclusions from the survey, the quantitative research approach was applied.

4.5.2 Qualitative Approach

Khan (2014) describes qualitative research as a process that involves understanding several ways for studying social phenomena. The goal of qualitative research is to gain an insight into human and interpersonal situations based on emotions and experiential components (Allwood, 2011). The methods for gathering qualitative data are non-structured, and the contexts encourage respondents to speak freely about topics that influence their lives (Mahoney 2009). The sample size limits generalization in qualitative research, especially because analyzing and interpreting spoken data may be difficult and time consuming (Mahoney, 2009). As a result, qualitative research tends to focus on a smaller sample size, despite the fact that it examines the problem from a broad viewpoint. The qualitative approach was utilized to augment and understand quantitative data findings via an open-ended interview.

4.6 Data Collection

Hox and Boeije (2005) categorize data collecting into two categories: primary data and secondary data. Primary data is defined as original data collected for a specific study project utilizing procedures that are best suited to the research problem. While secondary data is information gathered by other researchers or for purposes other than research (Hox and Boeije, 2005). This study made use of both primary and secondary data. For primary data, this research is targeted at Ghanaian citizens' (tertiary students') trust in e-government, therefore questionnaires were created and distributed, as well as interviews, to put the data obtained into context. All interviews were performed professionally. The secondary data utilized in this study were accumulated from articles, journal papers, books, government records and statistics. Other scientific studies or previous research were also reviewed to have a better knowledge of the research subject. Reputable websites were also used during this research.

4.7 Sampling Procedure

According to Saunders et al. (2012), surveying a large population is challenging owing to limited period of time, accessibility, and expenditure. Given the restricted resources, a sample size must be determined; the population of this study consist of Ghanaian citizens who use e-

government services. The sampling of such a population cannot be random since ordinary Ghanaians may not use or be aware of such services. As a result, the sample method used is non-probability sampling. (Saunders et al., 2012) defines non-probability sampling as “the probability of each case being selected from the total population is unknown and it is impossible to answer research questions or to address objectives that require you to make statistical inferences about the characteristics of the population.”. In this study, convenience sampling was used since it is incredibly efficient, simple, and cost-effective. Ghanaian citizens (tertiary students) who utilize e-government services were the target group. Before being provided surveys, potential respondents were vetted for recent personal experience with e-government.

4.8 Instrumentation

In the realm of survey approach, questionnaires are commonly used to collect data and are one of the most successful ways to do so. (Saunders et al., 2012) Since each participant completes the same questionnaire, huge samples of data may be collected efficiently. The survey was handed out in person and distributed online at <https://nettskjema.no/>. To eliminate errors in data transmission from data entry to collecting data, this survey tool directly exports data to an excel file, SPSS or Smart PLS.

The questionnaire utilized in this study was adapted from literature (Alsaghier et al., 2009). The purpose of this study was to create an instrument to measure citizen trust. As a result, the future direction of the research proposed conducting a survey for e-government users using this instrument. This study takes this advice and runs with it. The questionnaire is made up of nine constructs that are conceptually based on a thorough assessment of the literature and are anchored in current theories. The components were measured using multi-item scales taken from the literature that give meaningful assessment as well as precise and easy to interpret findings.

4.8.1 Q-sort methodology

The Q-Sort method is based on Q-Methodology, a factor analysis approach created by (Stephenson 1953). The Q-methodology is used to evaluate the reliability and construct

validity of questionnaire questions that are being developed for survey research (Nahm et al., 2002). The procedure is divided into two sections (Nahm et al., 2002). In the first step, two independent judges are requested to sort the questionnaire questions according to several constructs. The agreement between the two judges (inter-judge agreement) is computed based on this step. Items that were erroneously categorized and found unclear in the first phase are reworded or eliminated in the second step. The two-phase method is continued indefinitely until an acceptable degree of agreement is attained.

The chosen participants (Judges) were professionals in their respective fields. Two participants were directors in the e-Government program, one was a consultant in the e-Government program, and one was an IT department manager in a government ministry. Individual cards were issued with items developed to evaluate the structures. Following a randomized flipping of the cards, every judge was handed these cards and instructed to categorize them. In addition to the nine structures, a "Not Applicable" category was added to ensure that no items were forced into a certain classification by the judges. Each round included a separate set of judges. Judges were free to ask whatever question they wanted about the sorting technique or the study model and components.

4.8.2 Q-Sort Evaluation

Three assessment criteria were employed to examine the validity and reliability of the instrument: inter-judge agreement level, Cohen's Kappa Index (Cohen, 1960), and the "Hit Ratio" instrument developed by Moore and Benbasat (1991).

4.8.2.1 *The First Round*

The first round included 87 elements for each of the nine structures. This round's judges included an e-Government program director and an IT department manager of a government ministry. The inter-judge raw agreement scores averaged 80% in this round, and the first overall placement ratio of items into the target structures was 75%, with 131 of 174 items correctly categorized. Cohen's Kappa was calculated to be 0.80 for this round. According to Landis and Koch's (1977) standards for interpreting Cohen's Kappa, a score of 0.80 indicates an exceptional degree of agreement beyond chance for the judges in the first round. The average item placement ratio was 75%. The Institution-Based Trust construct has the lowest item placement ratio score of 57 percent, suggesting a poor degree of construct validity.

Furthermore, the value of item placement ratios for Perceived Website Quality, Perceived Usefulness, and Trust in e-Government constructs were low: 67 %, 67%, and 71 %, respectively. The first-round findings showed considerable misunderstanding among several structures.

4.8.2.2 The Second Round

The second round included 77 items for each of the nine constructs. The judges included an e-Government director and an e-Government consultant. The inter-judge raw agreement ratings averaged 91% in this round, an 11 percent gain over the previous round. As 131 of 174 elements were successfully identified, the total placement ratio of items within the target constructions was 88%, a 13 percent improvement from round one. According to Landis and Koch (1977) rules for interpreting Cohen's Kappa, the score of 0.91, an 11 percent improvement from round one, shows an exceptional degree of agreement beyond chance for the judges in the second round. They opted to end round two of Q sorting with Cohen's Kappa of 0.91, average placement ratio of 88%, and inter-judge raw agreement of 91%, suggesting a good level of reliability and construct validity.

5 DATA ANALYSIS AND RESULTS

5.1 Introduction

Survey questionnaires were used to collect information for this study. The questionnaires were delivered to 200 Ghanaian university students from four of Ghana's most prestigious universities. Each university, including the University of Ghana, Kwame Nkrumah University of Science and Technology, the University of Cape Coast, and the University of Development Studies, gathered fifty responses. These universities are located throughout the nation (southern, eastern, western, and northern) respectively.

The survey was split into two sections. The first section examined the respondents' gender and age, whereas the second part measured the variables under investigation through the use of a five-point(1-5) Likert scale ranging from strongly disagree to strongly agree. Disposition to trust, familiarity, institution-based trust, website quality, perceived ease of use, perceived utility, trust in e-government, perceived risk, and intention to use are among these variables. The initial element of the survey was to figure out who was taking it and what demographic they represented. The second aspect was taken from the literature. The demographic questions and the last question, which asked respondents to summarize their entire experience in written form, were not included in this questionnaire. Appendix A contains the survey questionnaire.

To supplement the survey results, qualitative data was gathered. Two sources of qualitative data were used. Using an open-ended interview with a group of e-government users as well as the remarks students offered in the questionnaire. A total of twenty interviewees were asked to participate. The interviewees were between the ages of 22 and 30. The interview took place through a Zoom video call. The purpose of the interview was to triangulate quantitative data obtained and contextualize them. Appendix B contains the interview protocol.

5.2 Descriptive statistics of demographic sample

The descriptive statistics regarding who answered the questionnaire are contained in this data. The survey had 200 respondents, however 9 % of the data obtained, representing 8

respondents, did not match the standards for compilation, thus they were not included, limiting the total compiled data to 182 respondents. According to previous research, online consumers of services are younger and more educated than offline users of services (McKnight et al., 2002), and university students fully suit this description, hence university students were employed in this study.

Interaction with government websites is also prevalent among Ghana's young people for a variety of reasons, including educational purposes, national service, youth activities, and sports. The use of Ghanaian university students for this study is suitable given that 83.5 percent of respondents were between the ages of 21 and 29 accounting for the youthful nature of respondents. Furthermore, the male-to-female ratio was [49.5 percent to 50.5 percent], which was extremely comparable to Ghana's actual population [49.3 percent to 50.7 percent] as published on one of the e-government websites, Ghana Statistical Service, therefore removing any gender bias. This provides for generalizability of results, which is one of the reasons why university students were chosen as a sample for the current study. Table 1.0 shows the gender demographic of the sample.

Table 1.0: Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative
Valid	Male	90	49.5	49.5	49.5
	Female	92	50.5	50.5	100
	Others	0	0	0	100
	Total	182	100.0	100.0	

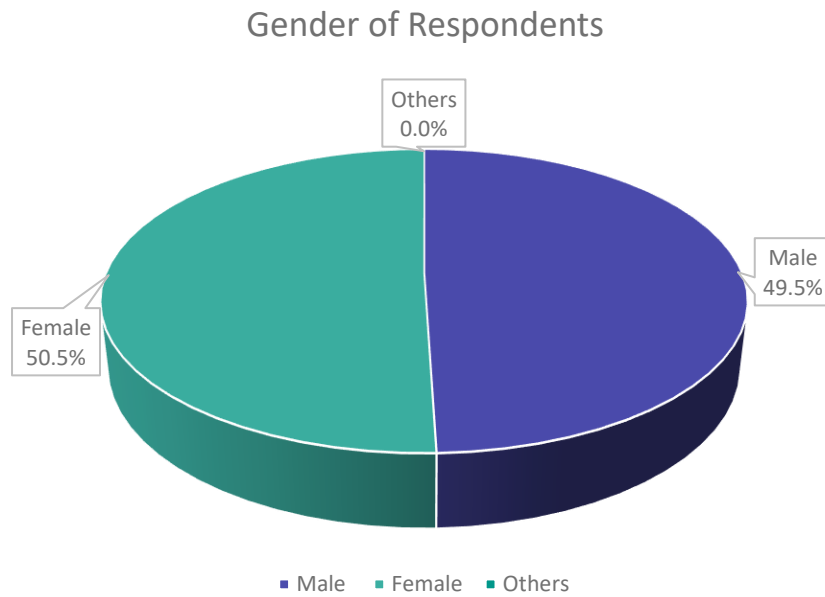


Figure 4: Gender Frequency Pie Chart

According to the pie chart and table above, 49.5% of respondents were male, while the remaining 50.5 % were female. The other category, which represented, choose not to divulge, and all other gender categories did not record any respondents.

Table 2.0 Age of Respondents

	Frequency	Percent	Valid Percent	Cumulative
Valid 18 -20	10	5.5	5.5	5.5
21 - 29	152	83.5	83.5	89
30 – 39	18	9.9	9.9	98.9
40 – 49	2	1.1	1.1	100.0
50 and above	0	0.0	0.0	100.0
Total	182	100.0	100.0	

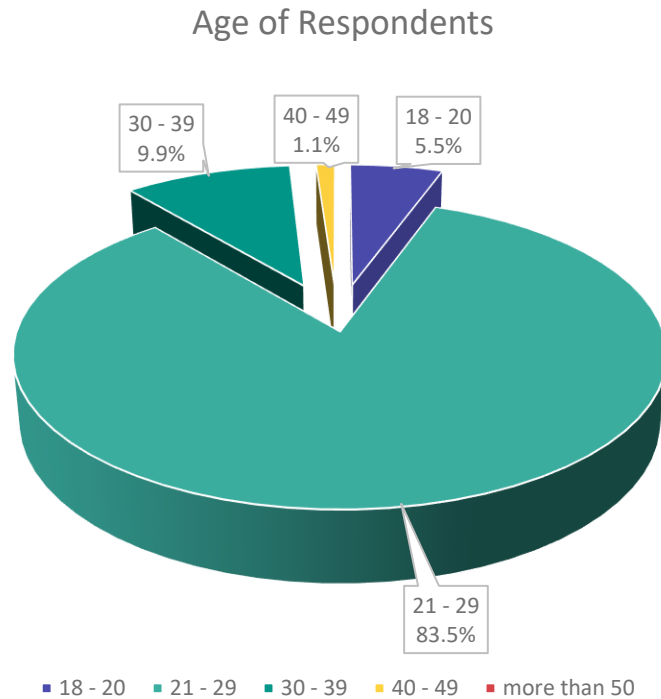


Figure 5: Age Frequency Pie Chart

The respondent was overwhelmingly young. They represented 89 percent of all respondents and varied in age from 18 to 29 years. According to the pie chart and table above, the largest age range was 21-29 years, accounting for 83.5 percent of the total respondents, while the lowest age range was 40-49 years, which recorded two respondents, representing for 1.1 percent of the total respondents. There were no responses above the age of 50.

5.3 Descriptive analysis of variables

By averaging the item scores, nine variables were operationally defined. Table 3 summarizes the descriptive statistics. Each individual respondent's answers covered the whole range of the 5-point scales. The constructs frequency distributions were unevenly skewed (skewness = - 0.04 to 1.12). The skewness was neither consistently negative or positive, indicating that participants did not regularly concentrate their answers at one end of the 5-point Likert scales or the other. Perceived Risk (2.9), Perceived Ease of Use (2.5), and Website Quality (2.43) received the highest median ratings, indicating the greatest levels of support.

Familiarity (2), Perceived Usefulness (2), and Institution Based Trust (2) had the lowest median ratings, indicating the lowest levels of approval (2.15).

Table 3.0 Descriptive Statistics of Constructs

	Mean	Median	Mode	SD	Skewness
DT	2.36044	2.3	2	0.488491	1.115978
FM	2.365385	2	2	0.921136	0.562835
IBT	2.341429	2.15	2	0.576907	1.067104
WQ	2.491538	2.43	2	0.733658	0.589469
PEOU	2.494505	2.5	2	0.802257	0.687485
PU	2.156593	2	2	0.674771	0.410092
TIEG	2.389121	2.25	2	0.660946	0.636018
PR	2.919231	2.9	3	0.656303	-0.04138
ITU	2.443187	2.38	2	0.680341	0.860802

5.4 Results

The data was analyzed using partial least squares (PLS). PLS is resistant to various data structure issues like skew distributions and regressor oversights (Cassel et al. 1999). Various research on information systems have proven it to be a useful approach of analysis

(Subramani 2004). PLS-Graph 3.3.9 was used to test the hypotheses. Hypotheses ranged from H1 to H8. Table 4.0 depicts the path coefficients and the relevant significant level.

Table 4.0 Statistical Significance of path co-efficient

	R Square	Significance F	Coefficients	t Stat	P-value
DT → TIEG	0.724948	1.86577E-46	0.17305733	2.462094	0.014781
FM → TIEG	0.724948	1.86577E-46	0.01604698	0.394537	0.693665
IBT → TIEG	0.724948	1.86577E-46	0.19303038	3.010241	0.002996
WQ → TIEG	0.724948	1.86577E-46	0.222948	2.967231	0.003425
PEOU → TIEG	0.724948	1.86577E-46	0.11569463	1.697549	0.09137
PU → TIEG	0.724948	1.86577E-46	0.35945411	7.06116	3.73E-11
TIEG → ITU	0.374788	4.22E-20	0.630163	10.38759	4.22E-20
TIEG → PR	0.116947	2.3E-06	-0.33957	-4.88244	2.3E-06
PR → ITU	0.158922	2.49E-08	-5.83189	3.010241	2.49E-08

Perceived usefulness was the best predictor of trust in e-government (path = 0.36). Website quality (path = 0.22), Institution-based trust (path = 0.19), Trust disposition (path = 0.17), Perceived ease of use (path = 0.12), and Familiarity (0.02) are the next most important factors respectively. The path co-efficient indicates that trust in e-government is linked with a high degree of perceived utility and website quality, as well as lower levels of institution-based

trust, disposition to trust, and perceived ease of use. It was discovered that familiarity had no effect on trust in e-government.

To begin with, disposition to trust (DT) is discovered to be a significant predictor of trust in e-government and, as a result, is positively associated with trust in e-government (TIEG). H1 is therefore supported (path = 0.17, $t = 2.46$, $p < 0.05$, $R^2 = 0.72$). However, familiarity (FM) was not substantially related to trust in e-government (path = 0.02, $t = 0.39$, $p > 0.05$), hence H2 was not supported. The findings suggest that institution-based trust (IBT) has a considerable impact on trust in e-government. H3 is likewise supported (path = 0.19, $t = 3.01$, $p < 0.01$, $R^2 = 0.72$).

Website quality is found to be substantially associated to Trust in e-government (path = 0.22, $t = 2.97$, $p < 0.01$, $R^2 = 0.72$). This implies that a high perceived website quality influences trust in e-government, supporting the fourth hypothesis H4. Perceived ease of use (path = 0.12, $t = 1.70$, $p < 0.05$, $R^2 = 0.72$) is shown to be related to trust in e-government, whereas perceived usefulness (path = 0.36, $t = 7.06$, $p < 0.01$, $R^2 = 0.72$) is found to be significantly associated to trust in e-government, supporting H5 and H6.

Risk perception was divided into two theories. First, consider how trust in e-government influences perceived risk, and then consider how perceived risk influences intention to use. According to the findings, trust in e-government is substantially related to perceived risk but has a negative effect (path = -0.34, $t = -4.88$, $p < 0.01$). H7a is accepted because it proposes that confidence in e-government has a negative impact on perceived risk. In addition, perceived risk is substantially related to intention to use (path = -5.83, $t = 3.01$, $p < 0.01$). The fact that the co-efficient is negative implies a reversal effect, which supports hypothesis H7b that perceived risk has a negative influence on the desire to utilize e-government.

The data acquired show that trust in e-government is a positive and substantial predictor of intention to utilize e-government. It demonstrates that trust in e-government is substantially related to intention to use (path = 0.63, $t = 10.39$, $p < 0.01$), supporting H8. The R^2 of 0.37 implies that trust in e-government explains 37% of the variance in intention to use, which is much higher than the 25% commonly recognized to suggest a model with practical as well as statistical importance.

In conclusion the hypotheses H1, H3, H4, H5, H6, H7a, H7b and H8 are supported by the results while H2 is not supported. The results will be discussed further in the next chapter.

6 DISCUSSION

The purpose of this research is to investigate Ghanaians' trust in e-government and how it affects its adoption. The goal is to determine if Ghanaians trust e-government and how this trust influences adoption. Data analysis reveals a number of intriguing findings. This chapter focuses on the findings of the analysis and marks the conclusion of the research. This chapter summarizes the outcomes' observations and insights. The first section summarizes the study's findings. The later part discusses the study's limitations. The consequences for research and practice are discussed in the next two sections. Finally, future directions are outlined.

6.1 Summary of findings

There are several constructs associated with trust in e-government. Six constructs were identified and assessed to evaluate if Ghanaians trust e-government. These dimensions are trust disposition, familiarity, institution-based trust, website quality, perceived ease of use, and perceived usefulness. Because one of the goals of the study is related to adoption, trust in e-government is also examined as a construct and its link to intention to use.

The model incorporates research from the literature that explains the role of perceived risk in online trust. Perceived risk had a two-way association with trust in e-government and intention to utilize. Nine constructs were assessed in all, and nine hypotheses were developed. Yet not all hypotheses are supported by the survey findings.

Five of the six variables had substantial relationships with trust in e-government, according to the findings. Trust in e-government is found to have a significant relationship with respondents' disposition to trust, institutional based trust, website quality perceptions, usefulness, and ease of use perceptions. However, familiarity with e-government was not shown to be a major antecedent to trust in e-government, which supports earlier research indicating trust is not a significant antecedent to trust in e-government (Abu- Shanab & Al-Azzam, 2014).

Citizens' trust in e-government was also found to have a detrimental effect on risk perceptions. In other words, the more people trust e-government, the perceived risk of utilizing it lowers, and vice versa. In this vein, risk perception was discovered to negatively influence intention to use e-government, such that as the perceived risk of using e-government diminishes, the intention to use e-government increases, and vice versa. Finally,

the findings demonstrated that trust in e-government is strongly related to intention to use e-government. As a result, when individuals have high trust in e-government, their desire to utilize the products and services provided by e-government grows.

6.1.1 The importance of trust in e-government.

Despite the fact that the end construct examined was intention to utilize e-government, the study's major focus was on Trust in e-government (TIEG). When asked if they trust e-government, Ghanaians' responses were heavily biased to the left, with strongly agree and agree representing the most common responses. The study's use of trust in e-government as a single variable suggests that Ghanaian citizens trust the e-government system and services. This addresses our primary study question of whether or not citizens trust e-government. The quantitative data was supported by qualitative evidence. When asked if they trusted e-government and why, one respondent stated:

Yes, I think e-government is trustworthy and has definitely gained my trust. I heard from someone that passport application had been digitized and decided to use it. I was skeptical things might not go as planned or may be fraudulent. But everything went smooth and easy, so I have no problem. And since then, I use other e-government services without worry.

The second component of the research question was how trust in e-government impacted utilization. The findings revealed a significant association ($p < 0.01$) between e-government trust and intention to utilize. This demonstrated a favorable effect of trust in e-government on use, with trust in e-government explaining a 37% variance in utilization. Interviewees provided some remarks to support these findings. According to one respondent:

I am very pleased how things went when I use e-government services. I am satisfied with the results I got. I trust it and I will continue to use. It saved me time, effort, and money when I used it so why not?

This suggests that trust is critical to the success of e-government. This demonstrates the need of trust in the long-term viability of e-government efforts. Previous studies that excluded trust as a factor to consider during e-government implementation will have to review or reassess, as this research adds to the literature indicating that it is not simply a mere element, but a

highly crucial one that cannot be ignored. One participant underlined the significance of trust in his usage of e-government, stating:

Of course, trust is important. I am very paranoid; I will not just put my personal details or information out there. I don't trust the system, or the service being provided, I will not use it at all.

The findings imply that creating citizen trust is essential for e-government success, defined in this context as adoption and retention. As a result, the government must use a variety of steps to foster trust. The numerous aspects that will serve as a foundation for governments to enhance trust are referred to as trust antecedents. These are discussed more below.

6.1.2 Different roles of the antecedents of trust in e-government

To understand how trust works in e-government, one must first understand the antecedents of trust. Except for familiarity, all of the characteristics offered as predictors of trust in e-government were substantially associated with trust in e-government. The results indicated a R - squared value of 0.72, indicating that these factors explained 72 percent of the variance in trust in e-government. These factors are also known as trust antecedents, which are things that come before or create way for trust.

According to the results of the trust in e-government survey, the most significant aspect to evaluate is **perceived usefulness**. Ghanaians feel that in order for them to trust e-government, it must be very useful to them, improving their performance and efficiency. One respondent stated the utility of e-government as follows:

Yes, the e-government services I have are very useful to me. For instance, I was in school and had to travel to the capital city for to go through the process of renewing my passport. It was very urgent, and I had exams also, I sat in the comfort of my room and completed the whole process online. This saved me all the travel cost and also time to concentrate on my exams.

This quote demonstrates how beneficial Ghanaian citizens find the e-government system/services. Raising awareness of how helpful e-government services are will go a long way toward e-government success. This in turn will increase trust as well as intention to use as pointed out by the results among uncertain trust of e-government users and also attract novel users.

The second most significant aspect in Ghanaians' trust in e-government was **website quality**. Most e-government services, if not on mobile platforms as applications, will be on websites, and as a result, the quality of the websites is critical in shaping citizens' trust in e-government. The findings revealed a relationship between website quality and trust in e-government. This means Ghanaians examine how the website appears, if it is straightforward and easy to browse, whether it does what they want, and its dependability. According to the questionnaire findings, the majority of respondents affirmed the dependability and ease of navigation of websites, although it lacked aesthetic qualities. Ghanaians did not find the website visually appealing, as shown in the interview:

For me, the website is simple to navigate as everything is in English and straight forward, but the interface is so boring and not nice. Frankly, if it were just for how nice it is, I would never visit these websites.

Another respondent mentioned that:

The website I visited had, a help button which told me what to do. Other than that, it was very clumsy and the colors oh my word! There is a lot of room for improvement when it comes to how the website looks. I use the website because the information I get is reliable, and in the end, I get what I need.

This demonstrates how important website quality is to Ghanaians, with the aesthetic characteristics of e-government websites falling short in this category. If the websites can be made to look good, it will go a long way toward increasing trust in e-government and increasing adoption rates.

Other major aspects influencing trust in e-government are shown by the findings. These variables include **institutional trust**, **trust disposition**, and **perceived ease of use**. Ghanaians feel that in order for them to trust e-government, the system or services should be simple to use. To boost trust and acceptance, e-government systems and services should be made as simple and painless to use as possible. Ghanaians' trust in other e-vendor institutions, as well as their inherent tendency to trust, impact their trust in e-government. According to the findings, Ghanaians feel that the greater their trust disposition, the more likely they are to trust e-government. Institutional trust also refers to how confident and delighted Ghanaians

are while doing their own online transactions, as well as how they perceive the security of the internet environment. Regarding institution-based trust, one respondent stated:

My experience in the online environment has been good. So far, no fraud yet. I am happy doing business online...and it's okay. Oh yeah, I don't have an issue with transactions online. I haven't had any problems and my friends haven't had any problems, so it is safe enough for me.

Trust in an online environment contributes to trust in e-government since e-government operates in an online environment setting. This helps to develop trust among new e-government users since they are already aware with the security and legal safeguards available to protect them in the event of a problem. The findings support this when institution-based trust has a favorable effect on trust in e-government (path = 0.19, $p < 0.01$). That is, those who have high trust in institutions will have high trust in e-government.

The only antecedent shown to be insignificant to trust in e-government was **familiarity**. ($p > 0.05$.) Familiarity in the sense that the more Ghanaians are exposed to e-government, the more they will trust it. The hypothesis was then developed that familiarity increases trust in e-government. However, the findings did not support this notion. When asked about their level of familiarity with e-government, one participant stated:

I am not really familiar with e-government websites. I use it once in a while. It is always updated when I use it. I do not use it on a regular basis. This is not to say I don't trust it; I trust it when I use it but it's just unfortunate that I don't use it more often.

This explains that Ghanaians' trust in e-government does not always depend on how frequently or familiar they are with e-government platforms or services. As a result, there is no substantial association between familiarity and trust in e-government. . A summary of the findings is shown in table 5 below.

Table 5.0 Summary of findings

Variable	Results	Findings
TIEG	path = 0.63 p < 0.01	The findings indicate that Ghanaians have trust in their e-government. It also demonstrates a direct and significant impact of trust on intention to use. However, certain trust criteria are rated higher by citizens than others, as shown below. As a result, hypothesis (H8) is supported.
DT	path = 0.17 p < 0.05	The findings suggest that citizens trust persons unless they have reason not to. Disposition to trust has a great effect on and is associated with trust in e-government. As a result, the hypothesis (H1) is supported.
FM	path = 0.02 p > 0.05	Citizens' familiarity with e-government has little bearing on whether or not they trust it. It has no substantial association with e-government trust. The second hypothesis (H2) is unsupported.
IBT	path = 0.19 p < 0.01	Citizens' trust in institutions was found to be strong, and it was discovered to be a crucial element in trusting e-government. The hypothesis (H3) is validated.
WQ	path = 0.22 p < 0.01	According to the findings, the quality of e-government websites perceived by citizens is the second most significant element in determining citizen trust. Citizens also complained about unappealing websites, which the government must address. TIEG and WQ have a strong relationship. The hypothesis (H4) is validated.
PEOU	path = 0.12 p < 0.05	In order for individuals to trust e-government systems and services, they must be straightforward and easy to use. The hypothesis (H5) that perceived ease of use influences trust in electronic government is validated.
PU	path = 0.36 p < 0.01	The most crucial thing that Ghanaians examine before trusting e-government is how valuable they believe it is. Governments should thus raise awareness about how beneficial e-government

		is in order to enhance adoption and usage rates. H6 is a supported hypothesis.
PR	path =-0.34 p < 0.01 path =-5.83 p < 0.01	Perceived risk was found to have a negative but substantial influence on e-government intention. The findings also revealed that the higher individuals' trust in e-government, the lower the risks they feel would emerge from its use, and vice versa. As a result, hypotheses (7a and 7b) are supported.

6.2 Limitations

Despite my confidence in the outcomes, certain limitations were observed. The first limitation was a time constraint—the entire study endeavor had to be completed within a few months of a semester. This leads to the second constraint.

Due to time constraints, the second limitation is the sample size. The sample size is limited and may appear insufficient for generalizing conclusions to a population of 31 million. There may potentially be other interviewees that could have been added.

The third drawback was that the research concentrated on particular factors, but other variables, such as satisfaction and trust in government, may also be explored. The addition of these factors can help us learn more about citizens' trust in e-government and how satisfied they are when they utilize it.

6.3 Implications for practice

The findings of this study have significance for government entities that offer or intend to give online service delivery. Several nations have already jumped on the e-Government train, but they now face the problem of raising acceptance rates and sustaining use. And, as the results demonstrate, building citizens' trust in e-government is a terrific method to accomplish this aim. We conclude from the findings that trust in e-government has a direct influence on the intention to use e-government systems and services, and as a result, government entities should incorporate trust building mechanisms for their citizens during the implementation of e-government initiatives and projects to ensure long-term success.

Second, the findings of this study suggest that governments and those in charge of policy development and implementation of e-government projects should consider the roles of specific trust antecedents in influencing citizens' trust in e-government, which will lead to high usage rates and sustainability in the long run. The most essential takeaway from these findings is that citizens would place a high value on e-government when they find it beneficial. Policymakers and those in charge of implementation must thus raise public knowledge about the usefulness of e-government systems and services in order for them to be effective. Citizens are also concerned about how visually pleasant and dependable the e-government websites are. As a result, Governments should invest in creating high-quality websites if they want to enhance adoption rates and retain users.

6.4 Future Directions

More study on trust in e-government in Sub-Saharan African nations is needed, with citizens from all parts of the country participating. A bigger sample size would produce more accurate means, uncover outliers, and allow for more accurate generalizations of results.

A satisfaction variable as a moderator between trust and intention to utilize e-government should also be investigated further. More research is needed to understand how trust in e-government influences satisfaction, which leads to intention to use.

According to the research, there are three types of e-government: government to citizen (G2C), government to business (G2B), and government to government (G2G) and its staff (G2E). This study focuses solely on G2C; thus, more research should be conducted on e-government in the business sector and other state agencies; in G2B and G2G.

7 CONCLUSION

This paper investigated how individuals' trust in e-government influences their use. This goal was divided into two sections: whether Ghanaians trust e-government in the first place and the impact of that trust on usage intention. To answer the research question, the nine-component model suggested contained independent factors predicting trust in e-government, as well as trust in e-government predicting intention to use.

The findings indicate that Ghanaians have a high level of trust in e-government, or, to put it another way, they trust their e-government. In terms of how trust in e-government affects usage, the findings revealed a substantial correlation and importance between trust in e-government and intention to use. This implies that trust in e-government has a favorable impact on adoption.

According to the findings, the most essential element Ghanaians evaluate when trusting e-government is how beneficial the e-government system or service is. When it comes to trust in e-government, Ghanaians' top priority remains the perceived utility of e-government. If a government has a specific e-government service or system that has poor acceptance and use, one solution is to raise awareness about how useful that e-government system or service is. The quality of e-government websites is the next most significant aspect they examine, as evidenced by the results. Citizens claimed that certain e-government websites were unappealing. Developing high-quality e-government websites with visually pleasant elements would help to boost trust and acceptance of e-government.

The findings indicate that familiarity with e-government systems and services has little effect on Ghanaians' trust. It has a negligible association with e-government trust. To have a better understanding of the construct, additional study into familiarity should be undertaken. Another issue that needs more investigation is how satisfied Ghanaians are with e-government systems and services.

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Appendix A: Questionnaire

The questionnaire is separated into two parts: SECTION I AND SECTION II. Kindly complete all of the SECTION I questions before heading on to SECTION II.

SECTION I

Gender	Male Female
Age Group (Years)	18 -20 21-30 31-40 41 and above

SECTION II

Please circle the number of your choosing to answer to all statements on a five-point scale.

1. Strongly disagree 2. Disagree 3. Neither 4. Agree 5. Strongly Agree

DISPOSITION OF TRUST (DT)		1	2	3	4	5	
People, in general, genuinely care about the well-being of others	Strongly Disagree						Strongly Agree
The average individual is really worried about the plight of others.							
Most individuals care enough to attempt to assist others rather than only looking out for themselves							
In general, most people follow their commitments.							
People, in general, attempt to back up their statements with deeds							
The majority of individuals are truthful in their relationships with others.							

The vast majority of professionals are knowledgeable in their field.							
I normally trust individuals unless they show me a reason not to.							
When I first meet someone, I usually give them the benefit of the doubt.							
My usual strategy is to trust new acquaintances unless they prove otherwise.							
Familiarity (FM)		1	2	3	4	5	
I'm used to searching the internet for government services							
I'm used to performing online transactions with the government over the internet							
I am acquainted with eGovernment websites.							
I'm used to interacting with government offices and departments via their official websites.							
Institution Based trust (IBT)		1	2	3	4	5	
I am pleased with how things go when I conduct purchases or other activities on the internet.							
I am pleased with how things go when I conduct purchases or other activities on the internet.							
I am at ease making purchases on the internet.							
I believe that most online businesses would behave in a client's best interest if a customer requested assistance.							
Most online vendors are concerned with the well-being of their consumers, not just their own.							
	Strongly Disagree						Strongly Agree

I am confident in the ability of internet vendors to fulfil their duties						
I'm comfortable doing business on the internet since online sellers often keep their promises.						
When I contact with online vendors, I always feel assured that they will do their part.						
In general, most internet vendors are capable of providing excellent service to their consumers.						
Most internet vendors are capable of addressing the demands of their customers.						
Most online vendors in my opinion, are excellent at what they do.						
I am happy using the Internet to do personal business because it has ample protections.						
I am confident that relevant legislative and technical mechanism will properly shield me from Internet issues						
I am certain that encryption and other technological advancements on the internet will make conducting business safer for me.						
Overall, the Internet has evolved into a stable and secure environment for conducting business						
Website Quality (WQ)		1	2	3	4	5
The majority of eGovernment websites:						
are simple to use						
provide conveniently accessible content						
they provide you enough information to find the government services you need						
They're simple to read						
They're appealing to the eye						
They're consistent throughout the site.						
	Strongly Disagree					Strongly Agree

Show how users may contact and engage with them						
Perceived Ease of Use (PEOU)		1	2	3	4	5
The majority of eGovernment websites are user friendly and simple to navigate						
It is simple to learn how to use e-Government websites.						
The majority of eGovernment websites are straightforward and non-irritating						
Communication with the state government is easier through its official websites						
Perceived Usefulness (PU)		1	2	3	4	5
Using eGovernment websites, I believe, allows individuals to look for government services and complete government transactions more quickly.						
I believe that adopting eGovernment websites may improve the efficiency with which citizens interact with the government.						
The majority of eGovernment websites may be used to seek for government services.						
The majority of eGovernment websites may be used to perform government transactions.						
Trust in E-Government (TIEG)		1	2	3	4	5
I feel that eGovernment websites are capable and efficient at providing government services						
Citizens can always predict the performance of most eGovernment websites based on their previous interactions with the websites						
Most eGovernment websites demonstrate concern and goodwill toward their users, creating a foundation for furthering the citizens' connection.						
	Strongly Disagree					Strongly Agree

I believe that most eGovernment websites will work to the best of their ability for the benefit of their citizens.							
I feel that the majority of eGovernment websites are genuine in their interactions with citizens.							
I would describe eGovernment as reputable.							
I believe that the majority of eGovernment websites will follow their promises.							
I feel that eGovernment websites are authentic and sincere.							
I feel that eGovernment websites can be trusted.							
I believe that most eGovernment websites would behave in the best interests of residents.							
If individuals needed assistance, eGovernment websites would try their utmost to assist them.							
I think that eGovernment websites are concerned with the well-being of all citizens, not just their own.							
Perceived Risk (PR)		1	2	3	4	5	
I believe it is unsafe to submit important information on eGovernment websites							
I believe that credit card information can be stolen while using a credit card to pay for government services through eGovernment websites.	Strongly Disagree						Strongly Agree
I feel safe transmitting sensitive information through eGovernment websites							
I am concerned about whether eGovernment would work as expected when contemplating doing business with them.							

I would be concerned that eGovernment websites would not offer the kind of value that I would anticipate.							
I have my doubts about the capacity of eGovernment websites to deliver on their promises.							
seeking government services using eGovernment websites would pose a significant risk.							
It would be risky to rely on information provided in eGovernment web sites							
Using government websites to look for and request services may result in unproductive use of my time.							
Using eGovernment websites will take too long or be a waste of time							
Intention To Use (ITU)							
I'm likely to request government services using eGovernment websites.							
I am likely to continue utilizing eGovernment website							
I am prepared to share credit card information in order to pay for government services through eGovernment websites.							
I can always rely on the information available on eGovernment websites.							
I am happy to give eGovernment websites my government identity number.							
I am willing to share information such as my name, address, and phone number to government websites.							

I am prepared to pay to have access to information on eGovernment websites.							
I will adhere to the processes and recommendations outlined on eGovernment websites.							

Please share your overall e-government experience in Ghana (mobile application and/or website)

Appendix B: Interview Guide

The semi-structured interviews with Ghanaian e-Government website users were undertaken with the goal of better understanding citizen usage of Ghana's e-Government websites. Respondents were specifically questioned about their experiences with these websites, and it is envisaged that further questions will be added in response to their comments.

The interviews began by informing participants that their responses will be utilized in research on Ghanaian e-Government uptake. The concept and purpose of the study were described to participants, and questions were then posed. Among the questions are:

Demographics

- Gender
- Age Group

DT

- Do you have trust in humans in general?
- When you first meet someone, how trusting are you?

FM

- Do you use e-government system and services on a regular basis?

IBT

- How do you feel after doing business via the internet?
- Do you have trust in e-vendors' capabilities and security?

PEOU

- Do you find eGovernment platforms and services to be simple to use?
- Do you find utilizing e-government systems/services to be confusing or annoying?

PU

- Do you find e-Government systems and services to be very useful?
- Do you think e-government systems and services help you save time and effort?

WQ

- Are e-government websites easy to use and dependable?
- Do e-government websites satisfy your expectations and deliver on time?

TIEG

- Do you trust e-government services/systems? Why?

PR

- What are your main issues regarding e-Government systems and services?

ITU

- Do you still want to use the e-Government system/services after your experience?
What will cause you to abandon using it?