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GHANA'S DIGITIZATION INITIATIVES: A SURVEY OF CITIZENS PERCEPTIONS ON THE BENEFITS AND CHALLENGES TO THE UTILIZATION OF DIGITAL GOVERNANCE SERVICES

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ABSTRACT

In 2005, Ghana initiated its digital governance strategy, this has resulted in Ghana becoming one of the fastest-growing countries on the African continent noted for flagship initiatives on Government-to-citizens digital systems. However, the have been some concerns from a section of the Ghanaian population about the impacts of these laudable initiatives, especially since 2017. This study aims to investigate citizen's perceptions of digitization initiatives embarked on by the Government of Ghana, in terms of the benefits and challenges of accessing the digital governance services in Ghana. The researcher adopted an online survey questionnaire to collect data from 1, 964 Ghanaians for six months, thus from June 1 2020 to December 1, 2020, on their perceptions of the digital governance initiatives. A total of 1, 964 questionnaires were validly responded to, which translates to 65.4 % of the targeted population for the study. The key finding according to this study revealed that digital governance initiatives in Ghana have greatly help to reduce corruption, increase productivity, and increased citizens e-participation in governance. Despite the key benefits identified by this study, participants also reported challenges such as high-cost internet data and the lack of a legal framework to protect users of digital governance service as key hindrances to digital governance initiatives in Ghana. This study concludes that 68% of citizens see the digital governance services embarked on by the government as beneficial and are easy to use.

Contribution/ Originality: This study add-up to existing literature on citizen's perceptions of digitization initiatives embarked on by the Government of Ghana, in terms of the benefits and challenges citizens go through in accessing the digital governance initiatives in Ghana. Therefore, this article documents how digitization initiatives can be used to promote the socio-economic development of Ghana and other developing nations across the globe.

1. INTRODUCTION

The Government of Ghana initiated its digital governance strategy in 2005 and it has since become one of the fastest-growing internet and telecommunications markets on the African continent. According to Demuyakor (2020) and Agboh (2018) some of the digital governance initiatives by the government of Ghana include vehicle registration platforms and e-government interoperability framework (e-GIF) among others. Information and Communication Technology for Accelerated Development (ICT4AD) Policy 2017 is also one of the recent digital governance strategies that have been implemented by the Ghanaian government. Ghana's strategic plan is to identify the available digital opportunities and strategies as well as to put in place an implementation plan that

will help in the establishment of Ghana as a leading digital governance hub through ICT innovation by 2023 in sub-Saharan Africa (Demuyakor, 2020; World Bank Group, 2016). To achieve this noble objective(s), the Government of Ghana in 2017 implemented digital governance policies such as the issuance of the digital national identification Card, e-justice system and e-smart driver's license, e-property addressing system, mobile money interoperability system, paperless port system, Ghana Post GPS, e-smart driver's license, electronic renewal of the National Health Insurance Scheme (NHIS), e-Immigration system, e-Cabinet system, e-Parliament e-Procurement among other (Demuyakor, 2020; Kyereme & Kaur, 2019).

According to the United Nations E-Government Survey (2018a) Ghana is considered one of the countries in Africa with a large number of public e-services. The Electronic Governance Development Index (EGDI) was released by the United Nations E-Government Survey (2018a) Ghana placed101th position. The results of the survey indicated how Ghana faired based on the Human Capital Index (HCI), telecommunication infrastructure as well as online services. However, Solomon and van Klyton (2020) and Ashmarina, Mesquita, and Vochozka (2020) noted the gap in the survey is that it did not carry out a digital governance development trajectory and a comparative analysis of the countries surveyed, especially the countries in the African continent. The survey mainly focused on assessing what is already in place and not what has been implemented or intends to implement in the near future. This, therefore, means that the United Nations report does not guide countries or prescribed the needed advice and expertise for developing countries to develop digital governance (Ashmarina et al., 2020; Solomon & van Klyton, 2020).

Available data from E-government indices provided by the UN survey on Electronic Governance Development Index (EGDI) 2016 and 2018 again shows that the government of Ghana has performed creditably well as far as digital governance and other e-government functions are concerned. This is a clear indication that the country is ready to take off in the digital governance process.

It is essential to note that the United Nation's EGDI Survey of 2018 points to the fact that there has been a great improvement in internet connectivity and penetration in Ghana. The population of internet users is 10,110,000, which is equal to a 33.6% penetration rate (Internet World Statistics -IWS, 2019). On the Global e-government Development Index, another survey by the United Nations 2018 on EGDI, Ghana rose from the 120th position in 2016 to 101 in 2018 out of 193 countries surveyed. The ranking also shows some form of improvement on EGDI with a credible online service Index from 2016 to 2018. According to the EGDI survey, Ghana improved from 0.374 in 2014, to an EGDI of 0.42 in 2016 and 0.5390 in 2018.

These impressive improvements in Ghana's global digital governance ranking are a clear indication that the government is committed to promoting e-governance through Ghana's Ministry of Communication (Agboh, 2018; Mensah, 2016). The Telecommunication Infrastructure index for Ghana is 0.26 which is slightly below the global average of 0.3711 but higher than in 2016 which was 0.21. Though the index is improving, it still hinders the capability of the government to implement digital governance programs as well as e-services and the adoption of other online services by the citizens.

Ghana that been overly ambitious on the issue of digital governance, internet access for its population and is among the first country in Africa to adopt e-procurement and other digital services. Some Digital Governance Services (DGS) in Ghana include e-Government Interoperability Framework (e-GIF), and e-vehicle registration among others. This paper, therefore, aims at investigating Ghanaian citizen's perceptions of the benefits and challenges of digital governance services in Ghana.

2. LITERATURE REVIEW

2.1. Global Digital Governance Situation

The early 1990s marked the beginning of the Information Communication Technology (ICT) revolution across the world. During this period, a massive range of new technological development was experienced across the globe.

Currently, the revolution has even moved to a new level of countries focusing on the provision of the internet to enhance the day-to-day wellbeing of its citizens (World Bank Group, 2016).

Globally, the politics of the internet is one of the most discussed issues in contemporary times. The monopoly of the United States of America in the provision of internet services to the rest world has gradually been taken over by other developed nations (O'Hara & Hall, 2018). Before this time almost every country in the world depended on Americans for the internet, which had its implications. A lot of more countries have developed their internet models to have 100% access to their national data and digital governance. A lot of countries in the global south such as China, India, and Russia are few countries that have developed their internet technology models for use. For instance, the dominance and might of China in the past decades are not only limited to its economy but also its remarkable internet technology (Holzer & Manoharan, 2016; Jean & Kim, 2020; Jin & Hurd, 2018). This internet revolution is what scholars describe as the "Post America" internet era, where most countries are now in charge of managing their internet technology (O'Hara & Hall, 2018).

International Telecommunication Union (2019) argues that Digital Governance can be well understood by comparing it with the concept of electronic governance. E-governance entails the use of ICTs to organize political activities both within and beyond the nation-states (UNDP, 2018). It is among the wide range of competing terms that entail the use of new communication technologies, for instance, the internet and mobile telephony and they are particularly used for political reasons (Nsengimana, 2017). According to Zhu, Tang, and Bai (2020), some other terms that are used and have overlapping meanings include e-democracy, virtual democracy, online democracy, e-participation, and e-deliberation. Digital governance and e-governance are, however, interchangeable on several occasions.

Currently, digital governance is mainly concerned with the involvement of the local population in the formulation of the policies that can help in the day-to-day running of a given state and it has to be based on the local needs, problems as well as priorities. The internet and other web-enabled services play a crucial role in the process (UNDP, 2018). It has to be noted that the local population can only take part in digital governance when they have an idea about what is taking place within the country. This will enable citizens to become an integral part of the processes of information generation, management, and consumption United Nations (2018a). According to United Nations (2018a) citizens form a crucial component within the information architecture of the central government.

2.2. African Digital Governance Situation

The "Post-American" internet era has triggered most countries in Africa such as Ghana to come up with ways of adopting the current internet technology to facilitate governance functions and geopolitics about the way the internet is used (Mensah, 2016). The success of the concept of good governance is mainly dependent on the level of the digital governance foundation. Modern Information and Communication Technology (ICT) will help in achieving the targeted objectives of digital governance. According to the digital or d-governance refers to s framework that is used to establish rules, accountability, and decision-making authority for a country's digital presence or an organization. This implies that the organization's website, social channels, mobile sites, as well as any other internet and web-enabled product and services, constitute the digital space of governance.

According to the 2018 United Nations e-governance report, Africa is lagging far behind the rest of the world. Concerning the E-Government Development Index (EGDI), Africa's average is on the rise (0.3433), but it is still lower than that of all other continents. Europe has the world's highest average (0.7727), with Denmark being the global leader (0.9150). Estonia is in 16th place (0.8486), and Somalia is last (0.0566). Only six African countries belong to the group of states with a high level of e-governance: Ghana, Mauritius, Morocco, Seychelles, South Africa, and Tunisia. Many Africans cannot be part of the progress in IT since they do not have reliable access to the internet owing to the high price of the service, or the lack of necessary skills. Digital governance is

currently high on the agenda in many developing countries including Ghana, while e-government is well established in many developed countries.

Mukamurenzi, Grönlund, and Islam (2019) and Emmanuel and Fiagbenu (2017) believe that if well managed digital transformation could be a game-changer for the African continent. It is an opportunity to boost economic growth and industrialization, alleviate poverty, and improve people's lives. Digital technology can drive innovation, economic growth, and job creation in many key sectors of the economy, and allows for greater interconnection of African markets with one another and with the rest of the world. It can enhance both market and financial access for all, particularly in marginalized areas neglected by traditional financial institutions. Promoting digitalization in Africa will maximize the impact in sectors such as health, energy, transport, agriculture, education, and facilitating access to basic social services, consistent with broader good governance and development policies and programs.

Margetts and Dunleavy (2013) point out that those most developed countries have had digital-governance development for close to two decades. At the same time, digital-governance initiatives have significantly increased in most developing countries including countries in Africa. Nyirenda-Jere and Biru (2015) believe that developing countries can learn the best practices and experiences adopted by the advanced countries in the implementation of digital governance models for the enhancement of digital governance initiatives.

According to Nsengimana (2017) and Deloitte (2012) the adaptation of such models from the advanced countries might not be suitable for developing countries because such models are mainly suited for developed countries with modern technologies and high-level awareness among the public, which is also known as e-readiness. Instead of being one-size-fits-all, some of the challenges and determinants of the implementation of digital-governance mainly depended on the levels of technological development (Deloitte, 2012). Such occurrences take place in developing countries like Ghana. In these countries, Digital Governance has gloated as a means of enhancing quality, access to better services, and reduced response time (Białożyt, 2017).

Nyirenda-Jere and Biru (2015) point out that most of the new programs for technological transformation in African countries were geared towards the development of the internet or information & communication infrastructure to improve the lives of the citizens. The approach of development had gradually been transformed, with ICT being adopted as a cross-cutting tool to tackle the traditional challenges of internet development, which are either human or social. UNDP (2018) proposed that internet development in the "post-American" internet era should focus on the most marginalized groups in society (Białożyt, 2017). Towards the end of the last millennium, most governments across the world including those in Ghana started to apply new strategies and policies to their development plans.

2.3. Digital Governance in Ghana

Ohemeng (2014) and Demuyakor (2020) point out that digital governance entails making sure that every community or village can access information that is available on the digital network. However, UNDP (2018) and Agboh (2018) argue that one major characteristic of digital governance in Ghana is that, not every citizen has access to the internet and computers. The system also ensures that no one is excluded from accessing information from the same network. The information is accessed through:

i. *Private/individual ICT nodes.*
ii. *Public ICT nodes like government information centers, post offices among others.*
iii. *The convergence of nodes, for instance, community radios, local newspapers.*

The digital governance policies in Ghana are guided by a powerful framework that was developed by the UNDP (2018) and United Nations (2018a). The purpose of the framework is to ensure that there is accountability so that citizens can successfully be part of the management of the day-by-day affairs of their respective countries. According to Solomon and van Klyton (2020); Ashmarina et al. (2020) and UNDP (2018), Ghanaian digital governance has the following six features: the three core components are (*E-service, E-*

administration, and e-participation). UNDP also categorized these three cross-cutting components (*Access to ICT and connectivity, access to information, and regulation of the political environment*).

2.4. The Theoretical Underpinning of the Study

The researcher decided to situate this study using the technology acceptance theory or model because it is the most suitable and allows the researcher to achieve the objective of this study. The Technology Acceptance Model (TAM) was developed in the year 1989 by Davis. The model offers an essential framework that helps in predicting as well as exploring the adoption of various new technologies to facilitate specific functions. The model forms the most applied model in as far as describing individuals' acceptability of various technologies. Technology proposes two major factors in establishing the probability of technology acceptance. Davis (1989) describes "perceived usefulness" as the extent to which users consider that the use of technology will increase their performance, with the perceived easiness of usage describing how difficult or easy technology usage is as experienced by a user. Given this, users will preferably utilize technology to solve a given health challenge if they consider that the technology will serve them well, and also it is considered to be a comparatively simple task to carry out.

Gasser, Ienca, Scheibner, Sleigh, and Vayena (2020) & Rahimi, Nadri, Lotfnezhad Afshar, and Timpka (2018) for instance, examined the technology acceptance model's applicability while describing the motives behind utilizing wearable fitness technology. The utilization of these particular devices was established to be significantly influenced by not only the alleged health benefits but also the apparent effectiveness of the device. Based on the technology acceptance model, Lai (2017) description for such behavior may be that, because various websites provide numerous health content, the internet can be of great use when seeking particular individually-tailored information. Besides, online-related information is easy to access as compared to acquiring information from doctors or any other health specialist. Figure 1 shows how the main key themes in the Technology Acceptance Model (TAM).

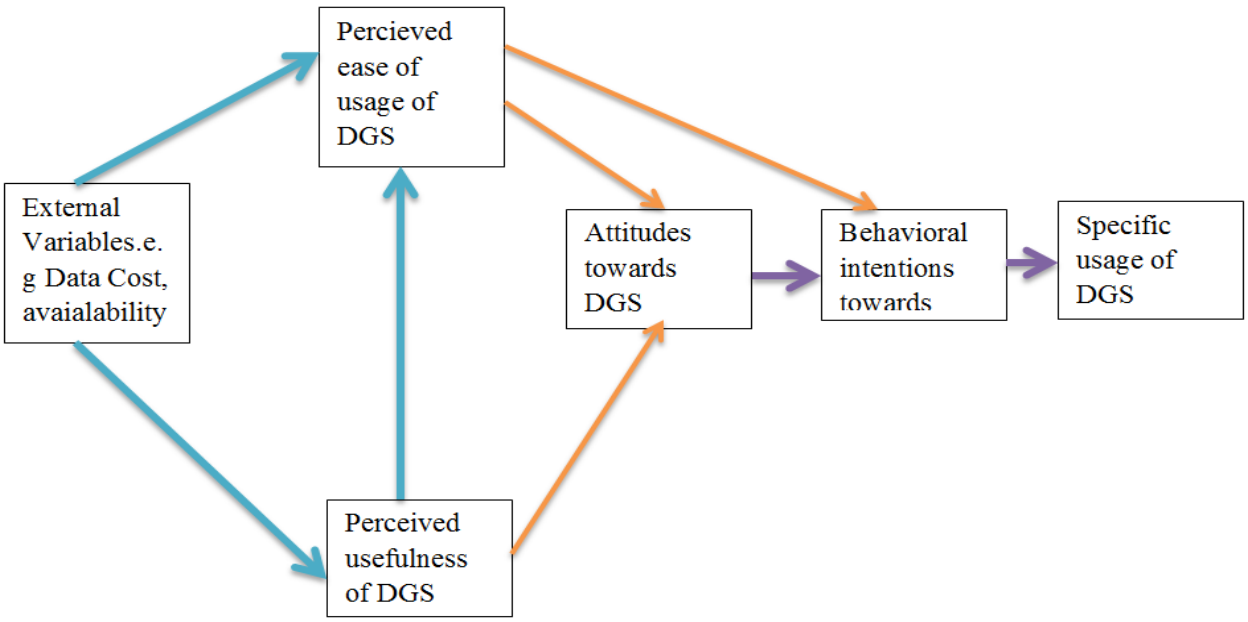

Figure-1. The basic technology acceptance model with minor modification

Source: Davis (1989).

The theoretical frameworks are also used by the researcher to come out with the Research Questions (RQs).

2.5. Research Questions (RQ)

RQ1. What the first choice of Digital Governance Services Ghanaians uses?

RQ2.What is the perceived usefulness of digital governance services of Government between 2017 and 2020?

RQ3.What is the perceived easiness of usage of digital governance services between 2017 and 2020?

RQ4. What are eminent challenges to the unitization of the digital services initiated by the government?

3. METHODS

3.1. Participants and Study Area

Respondents were from four municipalities and 6 districts within the Bono East region of Ghana. As a newly created region, the researcher wanted to have first-hand knowledge of the perception of citizens of how the digital government services were performing. A total of 1,964 participants took part in the survey. Out of the number, 68.2% were male, 31.7% were female while 0.1% represent another gender. The gender differences did not affect the result of the study. The age distribution of the respondents is as follows: 17.2% of the respondents were between 21-30 years, 49.6% were between 31-40 years, 28.3% were between 41-50 years and 4.8% were 50+ years academic qualification of respondents were as follows: Out of the 1635 11.7% were diploma certificate holders 46.8 Bachelor's degree, 7.3% Masters, 1.4% Ph.D., and 32.8%) others. The analysis and findings are Techiman Municipal (n=567, 28.9%), Atebubu-Amanten Municipal (n=234, 12.1%), Kintampo South (n=344, 17.5%), Nkoranza South Municipal (n=186, 9.5%), Kintampo North Municipal (n=413, 21.0%), Techiman North (n=60,3.0%), Pru East (n=28,1.4%), Sene West (n=76,3.8%), Sene East (n=30, 1.5 %), and Pru Weast (n=26,1.3 %).

3.2. Recruitment and Procedure

All 20 WhatsApp groups were sampled through the snowball sampling technique. The chain referral techniques in snowball sampling were used to get the other 10 WhatsApp groups from 10 out of 11 municipalities and districts in the Bono East region of Ghana. Recruitment of other respondents was done through snowball sampling. According to Hammarberg, Kirkman, and De Lacey (2016); Creswell (2016); Kirchherr and Charles (2018) snowball sampling helps the researcher to reach the population that is difficult to sample.

3.3. Techniques and Instrument for Data Collection

The data for this study were collected using a purposive online survey via the WhatsApp online communities and platforms of the target respondents (Oloo & Demuyakor, 2020). Before design the survey Questionnaire, the researcher has a formal sought for concerns from the administrators of the 10 identified WhatsApp groups.

The questionnaire for the study was designed based on the theoretical framework, literature review, and the research questions and hosted on QuestionPro a platform for online data collection. On weekly basis, the administrators reminded members to send the questionnaire out to other groups. The data collection lasted for six months, thus from June 1 2020 to December 1, 2020. To prevent multiple answering of the questionnaire, the software was set to allow for only a single entry from an individual. Out of over 3000 1,964 questionnaires were validly responded to, which translates to 65.4 %.

3.4. Validity and Reliability

The researcher pre-tested the online survey on the WeChat platform of the Ghanaian students studying in China. The pretest enables the research to verify and correct any mistakes and inconsistencies in the survey (Oloo & Demuyakor, 2020). Thereafter send the questionnaire link to the administrators of the sampled WhatsApp platforms for members to start filling.

3.5. Data Analysis

The study is made up of 16 questions exploring the benefits and challenges of digital governance initiatives in Ghana between 2017 and 2020. The 16 questions and four parts. The demographic characteristics of respondents, questions on the first-choice digital governance platforms used by respondents, the third part hosted questions on the benefits of digital governance initiatives and finally, the last part was on the key challenges to the use of digital governances' services in Ghana. Likert-scales were used to measure respondents' agreement or disagreement with the statement provided by the researcher.

The final data was downloaded to excel and coded. The coding was done with the guideline by Guo, Li, and Stevens (2012) theoretical model. The final data was analyzed via SSPS and percentages, Standard deviations used in measuring the relationships between the variables in the study.

4. FINDINGS

4.1. The First Choice Digital Governance Initiatives Used by Ghanaians (2017-2020)

The researcher wanted to know the first-choice digital platform used mostly by the respondents. The respondents who use Driver's License is (4.23± .35), Ghana Post GPS National Digital Property Addressing System (4.12± .99), Medical Drone Technology (3.72± .34), eHealth Insurance Renewal system (3.32± .87), and Others (2.24± .23). Per the results in Table 1., indicates that a greater number of the respondents use National Digital Property Addressing System (Ghana Post GPS) and e- driver's License platforms. (See Table 1)

Table-1. First choice Digital Governance initiatives used by Ghanaians.

Measurement Items	Mean	SD
e- driver's License	4.23	0.35
National Digital Property Addressing System (Ghana Post GPS)	4.12	0.99
Medical Drone Technology	3.72	0.34
eHealth Insurance Renewal system	3.32	0.87
Others	2.24	0.23

4.2. Perceived Usefulness of the Digital Governance services of Government (2017-2020)

The purpose of this research question is to evaluate and find out from respondents how perceived usefulness of digital initiatives. From the result, it is clear a greater number of respondents believe the initiatives are convenient and reduces work stress (transactions can happen at the comfort. See Table 2.

Table-2. Perceived usefulness of Using Digital Governance services.

Questions	Value, mean (SD)	Coefficient of variation	Relative importance
The digital initiatives provide citizens E-Participation and E-information	2.18 (0.93)	39.66	74.667
The transactions in the digital initiatives prevent bribery and corruption	2.68 (0.63)	21.51	89.532
Daily work output or productivity have increased due to the 24/7 digital initiatives	1.96 (0.88)	46.9	61.433
It is convenient and reduces work stress (transactions can happen at the comfort of our homes)	2.74 (0.62)	19.63	94.33
Total	2.39 (0.765)	31.93	79.99

4.3. The Perceived Easiness of Usage of Digital Governance Services

One of the main aims of the researcher was to investigate the perceived easiness of usage of digital governance services in Ghana. The analysis of the responses solicited from participants on the perceived easiness of usage of digital governance services are as follows: the key issues responded to are DGS is easy to use (4.81± 1.35),

Convenience, and easy to use for online services (3.66± 1.57), Help improve productivity (3.27± 1.79), and Facilitates citizens access to DGS 24/7 (2.86± 1.40). see Table 3.

Table-3. The perceived easiness of usage of digital governance services.

Perceived usefulness	Mean	SD
DGS platforms are is easy to use	4.81	1.35
Convenience and easy to use for online services	3.66	1.57
Help improve productivity	3.27	1.79
Facilitates citizens access to DGS 24/7	2.86	1.40

4.4. Challenges to the Unitization of the Digital Services

As shown in Table 4, "Lack of *Protection of information of citizens information is a big challenge"*, 3.3% strongly disagree and 46.0% somewhat agree and 40.4% strongly agree. The next challenge according to this study is *the cost internet bundle in Ghana is generally expensive*, 1.9 % strongly disagree 52.0% strongly agreed. The last variable the study wanted to measure is to find out if the lack of a proper "*legal framework that will act as a guide during the implementation of digital governance was a challenge"*, 37.9% strongly disagreed and 10.1% strongly agree. This means that the respondents believe that the digital governance legal framework is at the moment has no problems. (See Table 4.

Table-4. Challenges to the unitization of the digital services

Questions	Strongly Disagree		somewhat disagree		Neither agrees		Somewhat Agree		Strongly Agree		Total
	F	%	F	%	F	%	F	%	F	%	
Lack of Protection of personal information of citizens is a big challenge	66	3.3	79	4.0	120	6.1	905	46.0	794	40.4	1,964
The cost internet bundle in Ghana is generally expensive	39	1.9	95	4.8	231	11.7	576	29.3	1023	52.0	1,964
The is no clear legal framework that will act as a guide during the implementation of digital governance	745	37.9	620	31.5	201	10.2	198	10.0	200	10.1	1,964

Note: Strongly Disagree (1), somewhat disagree (2), neither agree (3), Somewhat Agree (4), & Strongly Agree (5).

5. DISCUSSION

According to the findings from this study, the implementation of digital services in Ghana has positively benefited the citizens of Ghana in various ways, especially in the Health sector and citizen's e-Participation and E-information:

According to the findings from this study, the citizens commended the Ghanaian Governments for coming out with the ehealth insurance online registration to help citizens in both urban and remote areas in Ghana have access to health care. Another area this study identified is the use of drone technology for medical supplies. In case there is a need for blood by a hospital, they only need to send a message through WhatsApp or place an order online. Delivery confirmation will then be received. A doctor receives an SMS informing them that a drone will soon dispatch a package through the use of a package in case the drone is within the area. Initially, it took up to 4 or more hours to be able to deliver life-saving medicines to remote areas (Ackerman & Strickland, 2018; Demuyakor, 2020).

With the availability of drones, the delivery of medicines and blood is completed within 45 minutes or less. Through the cooperation of the ministry of health in Ghana, Zipline Company has been able to deliver a total of more than 5,500 units of blood. The company has also managed to provide 170 different vaccines and blood products to more than 2,500 facilities. According to the findings of this study about 22 million people have received their services in Ghana. It is expected that once the program is established across the country, the costs

will be the same as the deliveries that are currently done through the use of vehicles. However, there will be a much quicker response time (Ackerman & Strickland, 2018; Demuyakor, 2020).

This study also concluded that E-Participation and E-information are also areas that have been of great benefit to the Ghanaian people. The concept of e-participation aims at leaving no citizen behind through digital participation. Citizens' access to information and other public services have been greatly improved through the use of online tools (Ashmarina et al., 2020; Solomon & van Klyton, 2020; World Bank Group, 2019). Consequently, decision-making and accountability have been enhanced in Ghana. The results from this study indicated that E-participation has acted as a means through which citizens can actively engage and attain the targeted objectives, especially in achieving the Sustainable Development Goals of inclusive citizen participation by 2030. This is how the citizens of Ghana have been able to access both E-participation and E-information services; archived information like policies, budgets, and legal documents. The use of digital channels such as mobile devices and platforms has been enhanced. There has also been open data technology in various areas such as education, health, social welfare among others. The citizens have been given the right to access government information through the formulation of the Access to Information Act. Notifications on public procurements and tenders are also provided online (UNDP, 2018).

Another key finding from this study indicates that Ghanaians were satisfied with the easiness of usage of digital governance services. A good number of respondents attested to the fact that digital governance services were relatively easy to use and has helped increased productivity.

Even though the concept of digital governance has numerous opportunities for Ghana and other African countries, the finding from this study indicates that its implementation in Ghana is hindered by several challenges. The challenges are related to various stages of the development of digital governance. The circumstance in which digital-governance is happening and how the two governments can cope up with prevailing pressure, both internally and externally is a catalyst to the process of implementation of the program. However, dealing with such an enormous and complex initiative requires serious planning which always proves to be a great challenge (World Bank Group, 2019). The main challenges according to this study can be classified into the following three categories; data, societal, and political.

The finding suggests that the digital dividends in Ghana further points out that it is in this backdrop that some issues are raised, for instance, who keeps the data and what are the reasons for keeping it World Bank Group (2016). How data is reinvented as technologies become obsolete is also deliberated upon as well as where the responsibility of the agency ends in ensuring that data is safe. It is essential to note that most used servers and domains are registered under American corporations (Margetts & Dunleavy, 2013). The government must ensure that the citizens' data and information are well protected, this will enhance the use of both digital-governance and e-government services (World Bank Group, 2016).

This research also identified the lack of protection of information of citizens as the main social challenges of the implementation of digital governance in Ghana. Protection entails how information resources, as well as internet infrastructure, are shielded from imminent threats, for instance, hackers, cyber-attacks, errors, and fraud. Citizens of Ghana are therefore cautious in their undertakings and would, therefore, want to be assured of the nature of the protection that will be provided (Emmanuel & Fiagbenu, 2017). Privacy is understood as a component of trusted interactions in areas such as digital communication, e-commerce, financial undertaking among other areas. The identity and how to protect it are matters that are closely related to the design and delivery of personalized services and expectations of the requirements of electronic commerce.

Access to information and transparency is yet another form of challenge identified by this study in the course of the utilization of digital governance services in Ghana. Access to information and transparency entails being able to obtain government documents, enhance the performance of government programs and services, and the capability of the people to offer inputs to policymakers. Digital governance requires transparency and

accountability from the government and private institutions that have been assigned with the duty of saving the citizenry. However, a large portion of the population still does not have to access the basic digital services (UNDP, 2018). Experts now advise that equity is applied in the process of implementation. It is also important to note that government agencies put into consideration the various levels of disparities of access. The diverse nature of the needs of the population has to be put into consideration by the service providers. Creating awareness among the citizens can help in explaining to the citizens how to get the necessary services that are provided by the national governments (Ashmarina et al., 2020; Nkohkwo & Islam, 2013; Solomon & van Klyton, 2020).

The lack of citizens' engagement during the process of digital governance project implementation is another challenge in Ghana. Most people are ignorant of the importance of the services provided through the digital governance platform which is due to inadequate public awareness. There is a lack of a clear framework that can lead to high participation in decision-making processes (UNDP, 2018). The problem of unawareness means that the response to services will always be below expectations. Social media reveals the so-called 'show effect' challenge. It entails the users' maturity and ability to critically select information and uses information in the best way possible. The digital divide within Ghana also contributes to low levels of implementation of d-governance because those who have access to internet connections may not be able to benefit from the services provided through the platform (Demuyakor, 2020; Kyereme & Kaur, 2019; Mukamurenzi et al., 2019).

Successful implementation of the d-governance initiative is mainly dependent on the efforts that the government will put in place to ensure that the processes can run smoothly. The findings from this study suggest that there is a need for a clear legal framework that will act as a guide during the implementation of digital governance. Even though Ghana has tried to put in place the required legal frameworks, implementation is quite challenging due to the lack of political commitment. Poor legislations, institutional bottlenecks, and maladministration are some of the areas that require attention for easy implementation of d-governance. Institutional barriers as identified by this study are reflected in bureaucratic systems (Kyereme & Kaur, 2019; Nkohkwo & Islam, 2013). The high cost of implementation of d-governance is also quite a challenge as well as installation, maintenance of hardware, and network services. The costs should be less than the associated benefits to guarantee a good cost/benefit ratio. Efforts should also be put in place to reduce the level of the digital divide (Mukamurenzi et al., 2019; Nkohkwo & Islam, 2013).

5.1. Implications and Lessons for other African Countries

The African continent is generally diverse. However, there are regional variations with their own specific needs and expectations. According to the United Nations (2018b), digital technology is every region's game-changer but most parts have not benefited from the benefits associated with digital technology. The 2018 UN report on digital governance, e-governance points out that Africa is lagging behind other nations of the world. Electronic Governance Development Index (EGDI) reports that the average rise in Africa is 0.3433. The figure is lower compared to other continents. Many Africans may not be able to qualify to be part of the signs of progress in the field of Information and Communication Technology (Signé & Ndung'u, 2020). The reason is that they do not have reliable and consistent access to the internet. The prices of internet services are quite high therefore most people keep away from the facilities (Deloitte, 2012). In the entire continent, only Mauritius, South Africa, Tunisia, and Seychelles are in the top 50th percentile together with other nations that have EGDIs above the world average of 0.549. Mauritius and South Africa are 66th and 68th respectively while Tunisia and Seychelles are at 83rd position (UNDESA, 2019).

This study highlights issues that can be put in place by both the governments of Ghana and other African countries to tackle the significant challenges during the implementation of digital governance. Some of the measures that can be put in place include the following:

Governments in Ghana and and other African countries must work hard to improve their economic growth as well as the levels of governance. Collaborating with other countries and intra-government organizations can drive digital transformation as well as finding innovative ways of expanding the economy and creating job opportunities for the citizens. The governments' ability to try to adapt to the changing nature of technology as a way of driving digital transformation across all the sectors of the society will in a big way determine their level of competitiveness (World Economic Forum, 2017).

All governments within the African continent use innovative solutions instead of traditional methods in delivering citizen-centric services. Technologies such as cloud computing are pointed out as one of the methods. Some countries are already doing it. For instance, in Morocco, there is a service that is referred to as e-Notary digitizes (Nyirenda-Jere & Biru, 2015; World Bank Group, 2019).

Cloud computing will be able to facilitate the governments to rationalize their processes as well as service delivery. Data will also be collected most efficiently and be analyzed accordingly (World Bank report, 2019b, p.12). When processes are efficiently carried out, industries will be in a position to compete on global levels because the information will be availed in the current trends. Future opportunities will be predicted and new marketing methods that meet the prevailing conditions will be used. Formulation of policy guidelines will ensure that a regulatory environment that promotes innovation and the confident use of technology is upheld. A balance must be struck between the free flow of data and information and the privacy policy. There is also a need for the government to train civil servants on the ways of optimizing innovations as it continues to invest in digital transformation (Zhu et al., 2020). Africans are coming up with local solutions to the daily challenges in various sectors such as Agriculture, health, and education. This is a clear indication of the entrepreneurship spirit among African youths. The relevant governments should, therefore, be ready to tap into this innovative spirit and ensure that the youth can compete on global platforms. Consequently, this will lead to quicker business growth (UNDP, 2018).

As we move closer to the new revolution, a business-friendly environment, as well as the culture of entrepreneurship, will be the guiding principle. It is high time Africa allowed the growth of businesses that are facilitators of technology and not just the users of it. The continent needs to empower a locally skilled workforce and ensure that there is well-updated legislation in the areas of cybersecurity as well as data privacy. Bandwidth should be affordable by the masses and the culture of innovation empowered to enhance growth at the grassroots level (UNDP, 2018).

African governments must create an enabling environment for new business models and investments to thrive. Microsoft is assisting governments to rationalize regulations and making sure that there is an ease in doing business through the use of cloud computing. An initiative such as "African open" can facilitate inventors to easily find solutions to various complexities, time, and costs that they have come across.

Digital transformation is likely to increase the income gap even further. This is because the automated jobs leave the working-class unemployed. The development of skills in Science, Technology Engineering, and Mathematics (STEM) fields must be enhanced by the various governments. As the continent works towards moving from a labour-based economy to a knowledge-based one, investing in skills education should not be an option but an imperative. Policies and strategies for future skills and jobs will steer clear of the ways of transforming lives, encouraging prosperity, and upholding social inclusion (World Bank Group, 2019).

Data is currently emerging as the new currency for the digital age. This has created new opportunities that never existed before. In this fourth industrial revolution, data is what cotton was in the 1st Industrial revolution. As more states try to decentralize their operations to increase responsiveness, more citizens are empowered to put meaningful data with, their reach. The democratization of information will contribute towards ensuring that there is a level playing ground. The availability of phones has already ensured that most people can participate actively in politics and get in touch with municipalities (ITU,2019).

6. CONCLUSION

Digitization has greatly influenced our lives in different ways in Ghana and other African counties. Information Communication Technology has enabled many countries, including Ghana to build d-governance initiatives. Some opportunities are available to implement digital governance. However, the process has been faced with a myriad of challenges. The current digital world has varied opportunities but is faced with complications that need to be handled with utmost care and understanding. ICT should, therefore, be applied based on specific principles and foundations regarding data sharing, information storage as well as general management. Continuous use of internet services will improve access to information and the creation of awareness among people. African governments should play a leading role in ensuring that citizens can access internet services at affordable costs. By doing so, the objectives of effective digital governance will be achieved. Ghana should scan open society trends to find out how data is combined and used. A schedule that filters information and safeguards the public against social media need to be put in place. The concerned bodies such as the state, the private sector, and the general society should work together to synchronize principles of practices and formulate policies that can enhance the attainment of the goals. The concept of digital governance should be value-driven and not technology-driven. It has to be understood that the benefits that are associated with digital governance cannot be realized through digitizing and placing it online but the aims at giving improved services to the citizens.

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