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# Digital Economy and eGovernance : A Nigerian Preparedness

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## Abstract

Despite accounting for 15% of the continent's population with more than half the population under the age of 30, and 122 million internet users (55.4% penetration), Nigeria is still plagued with economic, security, and corruption challenges. Leveraging on Technology Adoption Model (TAM) and Technology-Organization-Environment (TOE) frameworks, this work used a mixed research methodology to ascertain the level of eGovernance involvement in the fight against corruption; assess the impact of digital economy growth on security, and test the correlation between the digital economy and eGovernance in Nigeria. Through purposive data gathering from experts involving 52 questionnaires and 7 interviews followed by coding and statistical analysis, it was discovered that there is very little strategic drive of an anti-corruption war using eGovernance as there is vast room for better performance. It was also noticed that the digital economy has led to an increase in cybercrime in Nigeria while there is a small positive correlation between the digital economy and eGovernance in the country. Adequate recommendations were made on how to address the identified challenges.

## Keywords:
Digital economy; eGovernance; anti-corruption; cybercrime; TAM; TOE

## Introduction

Africa is plagued with political and governance crises, (Fosu 2012). Despite all these, internet users are on the increase, reaching 24.4% in 2018, (Mumbere 2018) and 570 million users in 2022, Statista(2024). Adeleye and Eboagu (2019) observed that ICT development has a positive impact on economic growth with mobile usage having the largest elasticity impact. Mohammad et al. (2018) and Zhao et al. (2015) established a positive two-way correlation between the eGovernance and digital economy. eGovernance initiative has been described as one of the panaceas to the scourge of corruption, (Abu-Shanab et al. 2013; Andersen 2009)

However, Egwemi (2014) observed that corruption has defied many antidotes being applied in Nigeria. Fighting corruption without a systemic way of preventing it is tantamount to a waste of time. Adebanwi and Obadare (2011) highlighted the concern of corruption fighting back when it is initially fought and then not killed completely in a sustainable way. According to United Nations data for 2020, Nigeria ranks 140 on the global UN e-Governance index and 0.4525 as the e-Government development index, it is indeed clear that much has to be done. This study helps to know to what extent the government is being deliberate in fighting the war against corruption sustainably. It will also

add to the pool of knowledge in the areas of assessing how the government can review its anti-corruption campaign alongside the planned eGovernance initiative.

This study sought to explore how ready Nigeria is positioned to be able to harness these means to address critical national issues of governance – anti-corruption, security, and economy

### Objectives of the study

Corruption accounted for 5% of the global GDP - $2.6 trillion, (Graycar and Penzler 2013). In Nigeria, this phenomenon has grown monstrous and fast becoming resilient and the only hope now is to systemically prevent this monster called corruption from happening, (Rotimi et al. 2013). The goal of this work is to review Nigeria's preparedness in the use of digital economy and e-governance across anti-corruption, economy, and security. Thus, objectives are itemized as follows

To assess the level of eGovernance initiative in the anti-corruption drive of the government
To understudy the impact of the digital economy initiative on the security challenges of the country
To study and ascertain the trend or pattern between digital initiatives and the entire economy as a whole

## 2. Literature Review

The coinage "Digital Economy" was credited to Don Tapscott (1997) in his work The Digital Economy: Promise and Peril in the Age of Networked Intelligence". This concept has changed the general outlook of many economic forms, especially with the drive given to "Sharing Economy" - defined as "ICT-enabled platforms for exchanges of goods and services drawing on non-market logics such as sharing, lending, gifting and swapping as well as market logics such as renting and selling", (Laurell and Sandström 2017). Today we have more success stories with the likes of Airbnb and Uber leveraging on this model, ( Laurell and Sandström 2016). In Nigeria, the pace has been promising with the establishment of agencies/bodies like NITDA OIEE, and others.

According to Scholta et al. (2019), the current drive of eGovernance is now moving away from the one-stop model to a no-stop model. In the one-stop model, (Wimmer 2002), data is collected from one digital point of entry and used for multiple services on request. Despite all its merits, it is becoming boring. Thus the no-stop model talks about proactive government-citizen engagement where the needs of the citizens are pre-empted proactively. For example in Taiwan, the emphasis is changing from the traditional pull style to a more citizen-centric push approach, (Linders et al. 2018). In the pull approach, citizens must seek government services in a bid to do anything while in the new push approach, the government acts proactively attempting to pre-empt the needs of the citizens. To do this, they are focusing on personalized notifications to enhance service excellence; Door-to-Door e-Services through mobile civil servants using gadgets around the community.

Despite the immediate growth and economic development brought about through the digital economy and eGovernance, security has always been a major concern. The poor ranking of Nigeria – (4th in Africa and 47th in the world) in the Global Cybersecurity Index, is a warning signal on the need to pay attention to the security of cyberspace, (GCI 2020). According to the UN eGov Survey (2022), Europe leads in the e-Government development Index (0.8305), followed by Asia (0.6493), the Americas (0.6438), Oceania (0.5081) while Africa comes last with 0.4054. Our lives are wired with all information that matters to us in life, including financial details being stored in one place or the other. Thus, Commitment Trust Theory theorizes that for any successful marketing relationship to occur, there must be commitment and trust, (Morgan and Hunt 1994) and this is why the issue of security can never be over-emphasized in the pursuit of digital advancement. For example, Carnegie Mellon's CERT – Computer Emergency Response Team recorded a double of reported incidents or vulnerabilities from 22,000 in 2000 to 53,000 in 2001, (Dutta and McCrohan 2002).

It has now become imperative to review security and trust concerns on any digital solutions. In January 2024, World Economic Forum declared 2023 as a big year for cybercrime including one on the US State Department. According to Statista's Cybersecurity Outlook, it was estimated that the global cost of cybercrime will jump from $8.44 trillion in 2022 to $23.84 trillion in 2027. Even more worrisome is the realization that countries doing fine in eGovernment do not automatically translate to doing fine in the GCI index as well, as observed in a study comparing the security of government sites in Australia and Thailand, (Thompson et al. 2019). Mukherjee and Nath (2007) reviewed the impact of electronic trust in online business and it is evident that customer behaviors are informed by past experiences. The Internet has been described as the backbone of the banking services now and this sector has been primarily responsible for many security innovations like the BVN – Bank Verification Number in the country. Data Nationalism is another

concern that is being faced on security issues in relation to operational benefits, (Chander and Le 2015). Also, social media cybercrimes have been on the rise and there is a paucity of literature on how the digital economy impacts the security of the country.

There has been a concern about what GDP measures versus the welfare side of the people where digital economy plays an important role. While the GDP measures the total value of market and near-market prices only, welfare, however, has consumer surplus embedded, (Coyle 2017). Measuring the impact or contribution of the digital economy to the nation's growth (GDP) has been a major problem for traditional economists. This is simply because people pay for goods and the intangible services that make the goods readily available are not easy to quantify and measure, and thus adjudged to have a zero price, (Brynjolfsson and Collis 2019). This is just the case when Encyclopaedia Britannica goes for thousands of dollars when being purchased and Wikipedia goes for free, yet offering the same if not better services. In fact, in the end, customers had to jettison the patronage of an encyclopedia to use a free online search platform – Wikipedia. It, therefore, means that though we are not paying for free digital services, it costs money. Using the method of consumer surplus, MIT researchers - Brynjolfsson and Collis (2019) were able to estimate the consumer surplus – defined as the difference in the amount the consumer is ready to pay for a goods/service and its price. To measure this cost, they did enquire about how much can make people abandon some of these digital platforms which would symbolically put a price tag to their worth. For example, in the US the median amount that makes people jettison Facebook for one month is $48 while in the EU, it is about 97 pounds. As the case of Facebook, they estimated that US users have gotten a value of around USD 231 billion in value since its inception in 2004. The consumer surplus has been devised as a means to measure this, thereby paving the way for GDP-B (GDP with benefits) computation.

Finally, in reviewing prior works to consolidate upon, the works of Abu-Shanab et al. (2013) where they argued that eGovernance helps to reduce or fight corruption through Increasing transparency, better efficiency, and openness guided the basis of framing our questionnaire to test how the government anti-corruption drive is being driven by eGovernance. Chertoff and Simon (2015) explored how the rise of the internet has also bolstered the dark web and the deep web thereby posing a security threat and the work will deep-dive into the Nigerian context on how the digital economy and eGovernance initiatives impact one another. When citizens get more comfortable with a digital lifestyle, governance cannot be stagnated on an analog style.

## 3. Methods

The research work adopts a Mixed-Method methodology. The exploratory sequential mixed approach used was able to give an insight into a balanced view of both quantitative and qualitative methods, (Paul, 2019). On the qualitative side, interviews were conducted with some experienced staff of NITDA - National Information Technology Development Agency. Findings were coded, analyzed and triangulated. Thereafter, questionnaires were administered purposively to professionals and analyzed with IBM SPSS.

It was discovered the anti-corruption drive of the government is not being perceived. The digital economy has also contributed to cybercrime in the country and there is a positive (weak) correlation between eGovernance and the digital economy in the country.

## 4.Data Collection

Even though interview seems to be the most common, there are other types of qualitative data collection which are observation, documents, audio-visuals, email or text messaging, and journaling in narrative storytelling, (Creswell 2007). The emergence of social media platforms like Twitter, and others to gather data has also brought in a new twist. In all these, one vital thing according to Cooper and Schindler (2008) is to make respondents comfortable, probing for facts without making them feel embarrassed. It is also important to follow the train of thought of the participants, listen attentively, and document. Aborisade (2013) mentioned that both individual and group interviews accommodate different situations and conditions of the interviewees while Stokes and Bergin (2006) argued that individual interviews are better when conducting sensitive issues. Also, Patton, (1990) classified the interview form of qualitative research into three types – informal, guided, and standardized. Informal interviews are tailored to what suits the respondents and are usually individualized and unstructured. A guided interview allows the researcher to come up with lists of questions that are followed up along the interview while a standardized interview allows the same questions to be asked by the respondents in the same order thereby allowing identification of earlier themes and comparing easily. The study used the standardized interview method while using individual and group interviews depending on the availability of respondents and sensitivity concerns. Questionnaires were thereafter formed using the Likert-scale to test the quantitative part of the major themes in the study

Ethical consideration is a major concern such that respondents are free to express themselves and anonymity guaranteed. This is important in our case, as the work seeks to unravel important discourse in the country.

## 4. Qualitative Data Gathering

Agee, (2009) emphasized the importance of asking appropriate questions in qualitative research as the foundation of having reflexive research question(s).

This sequel to the research questions itemized earlier as shown below:
I. How is the government anti-corruption drives being instigated through the eGovernance initiatives?
II. What impact is the digital economy drive of the government having on the security issues in the country?
III. Is there any relationship or correlation established between the digital economy and e-governance drives of the government?

Sample qualitative questions are as follows:

- What do you do in the NITDA
- How many years of experience have you gotten eGov, digital economy and security solutions across government agencies

*Anti-Corruption and eGov Question*

- QQ1: Do you think corruption can be eliminated or reduced to an insignificant level in Nigeria?
- QQ2: If Yes, what are the best ways you think this can be done
- QQ3: Can you cite an example of any eGovernance initiative/project that has helped to reduce or detect corruption in the government in recent times
- QQ4: Do you see the zeal and passion to continue to use these solutions (if any above) from the part of the users?
- QQ5: Are there instances of where a project that is good and functional being deliberately ignored because it blocks corruption?
- QQ6: Do you think the government is doing enough to fight corruption using eGovernance solutions/technology
- QQ7: GIFMIS – Government Integrated Financial and Management Information Systems stated on their website thus "… GIFMIS) cannot be a driver of change to better public financial management - rather it is a tool to facilitate change…" Do you see GIFMIS being used to the fullest potential now?
- QQ8: Is there anything you think the Government could have done technologically to get a better result in reducing corruption in Nigeria
- QQ9: What do you think about EFCC declaring huge sums being paid back by looters compare to when this looting was made impossible from the onset?
- QQ10: Do you see us doing better in the global corruption index if we continue at this pace?

*Digital Economy and Security*

- QQ11 Nigerians are doing more internet-based transactions now, do you feel safe using the online medium to do all your transactions.
- QQ12 What makes you comfortable most, could it be your secrecy of login details or your bank/cards company security or the understanding that even if you are defrauded, the institution has a way of helping you out?
- QQ13 There are more internet fraudsters from Nigeria operating across the globe, does this affects your online trust at all?
- QQ14 Do you think the development of eCommerce platforms in Nigeria has an impact on our security architecture?
- QQ15 What do you think is responsible for the proliferation of internet fraudsters (popularly called "yahoo-yahoo boys") in Nigeria?

*Correlation between the digital economy and eGovernment drive of the government*

- Do you see any government intervention or impetus as part of what is driving some new start-ups being founded in the country
- Do you think the government should regulate the fin-tech start-up or should keep everything open for now?

- Do you have some examples of how an eGovernance initiative led to a digital economy boost or vice-versa
- What is your view about the planned regulation of the Fintech firms
- Do you see the fear of disruption of the conventional banks by Fintech firms as a strong concern higher funds invested with Fintech platforms crowdfunding for investment
- Do you think the government is doing enough to incentivize and support digital SMEs through eGovernance

### 4.2 Quantitative Data Gathering - Questionnaire Design

As a sequential exploratory study, the buildup of the questionnaire will take some input from the qualitative studies. Questionnaires are designed with Likert-scale psychometric scales that avail multiple categories to choose from, Nemoto and Beglar (2014). It also allows the opportunity to give the intensity of feelings, (Barua, 2013).

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

*Anti-Corruption and eGov Questions*

The questions here are premised based on the view of Abu-Shanab et al., (2013) who they posited that eGov fights anti-corruption by

- Increasing transparency
- Making government faster, ie efficient and
- Openness

### Digital Economy and Security

The questions under this category build upon the work Spremić, and Šimunic (2018). The questions are drawn from the following categories

- To evaluate the level of security awareness impact with the drive of the digital economy
- Assessing the impact of an increasing number of attack
- Assessing the likelihood of a successful attack of different types of MDAs (Ministeries, Departments, and Agencies) and Critical National Infrastructure (CNI)
- Assessing the effectiveness of cyber control to protect the MDAs and Critical National Infrastructure

Correlation between the digital economy and eGovernment drive of the government

This section tests the expert opinion or view of the respondents on the correlation between the digital economy and eGovernance.

- Assessing the relationship between Digital economy and eGovernance
- Assessing eGovernance in the fourth republic 1999 till 2000
- *Assessing eGovernance in the fourth republic 1999 till 2000*
- *Assessing Digital economy in the fourth republic 1999 till 2000*

## 5. Result and Discussion

The effort of gathering qualitative data was quite revealing as interviews were conducted for 7 (5 males and 2 females) experienced professionals in the IT – eGovernance and the digital economy. Most interviewees opted for taking vital notes as against being recorded. They also referred to several other documents that have been made to guide the framework of the concepts in the country. In areas where recordings were possible, transcriptions were done and some follow-up clarifications were needed, (Hawkins 2018). Critical themes were noted from the interviews and triangulation. The qualitative data were obtained first and the quantitative questionnaires were formed based on some themes that emanated from the interviews and pertinent earlier research work.

The questionnaires for the quantitative data were shared via online – google form while some other offices/units demanded printed hard copies. A total of 52 copies of filled questionnaires were obtained from purposively selected professionals from NITDA, OIEE, and other professionals in the eGovernance and digital economy. The data collected are then analyzed using IBM SPSS software.

### 5.1 Qualitative Analysis

Five out of our interviewees are experts in eGovernance while the remaining two have expertise in Digital Economy with vast industry experiences of over 13 years minimum for each one of them. They are all postgraduate degree holders, above 40 years of age, and have also led projects around their domain areas while some are currently driving other projects. There are noticeable convergence of thoughts on triangulation and follow up with the experts and this makes the qualitative analysis have consistent themes and easy to summarize.

The survey questionnaires dwelled on all three research questions. Qualitative Questions QQ1 to QQ10 enquired about the perception of the respondent on the first research questions – anti-corruption and eGovernance; questions QQ11 to QQ15 were focused on the second research questions – digital economy and security while the remaining, QQ16 to QQ21 were all meant to explore the views of the audience on the correlation between digital economy and eGovernance.

#### 5.1.1 Anti-Corruption and eGovernance Questions, QQ1 – QQ10:

Most participants, over 80% expressed the possibility of eGovernance reducing the pace of corruption while some cited examples of cost savings efforts of NITDA where the agency had stopped another government parastatal from going ahead with an IT project that is not deemed "APPROVED" by the agency. This led to savings of the funds that could have been squandered on the project. In response to Qualitative questions – QQ1, many expressed optimism that corruption is a human misdemeanor and can be curtailed if there is zeal and willpower. A further probe to get more details met an answer as below from one of the interviewees "…we all know this can be stopped when we are ready as a nation". It was noticed with a similar pattern of response that QQ6 "Do you think the government is doing enough to fight corruption using eGovernance solutions/technology" got a response of "… there is always room for improvement especially when political will is needed to make technology work"; when asked if there is lesser political will currently, he said, "political intrigues makes some things uneasy to understand". Some others attributed that the notable improvement and attention from Presidency in recent years has largely been the effort of the past and current leadership DG/CEO of NITDA while noting that the pace is not fast enough to be deemed "good or comfortable in a country where many are hungry". All our professionals refused to comment on EFCC and GIFMIS stating that they have no idea of detailed insider understanding. It was observed that while answering some questions interviewees would have also answered some other pertinent ones which help in saving time. QQ10 unanimously attracted answers from all interviewees that the current pace will not give us a better posture on the global anti-corruption index.

#### 5.1.2 Digital Economy and Security, QQ11 – QQ15:

While all our interviewees expressed that they feel safe using the internet owing to their level of internet education and security awareness, none (0%) alluded to the fact that safety has anything to do with robust institutions that can trace any infractions or fraud if it happens. One specifically said, "I have a bank account I can never expose to internet banking and ATM at all because I just cannot trust the system 100%". Probing further, it was evident that this person has a dedicated account for Internet banking and other online transactions. There is also an overwhelming concern by all professionals interviewed about the increasing number of cybersecurity fraudsters among the youth. Increasing awareness of eCommerce services and other internet awareness was largely adjudged (over 67%) as one of the reasons for the increasing cyber-attacks. Others felt we cannot live in isolation as it is a global trend and it does not have so much to do with eCommerce or other digital initiatives in the country. On the proliferation of cyber fraudsters (called "yahoo-yahoo" boys in the local parlance), over 60% of our interviewees attributed the same to peer pressure and juvenile discovery; others attributed it to unemployment, poverty, and greed.

#### *5.1.3* Correlation between the digital economy and eGovernment drive of the government, QQ16 – QQ21:

The cash-less policy of the government among others is seen to have given impetus to the digital economy. Many of our interviewees also noted that digital initiatives are only more pronounced in some states of the country like Lagos and Abuja, while other states like Port-Harcourt, Kaduna, Ogun, and Ibadan are trying to step up. It does mean that beyond government drive, the level of civility of the populace is also important. The QQ17 about Fintech regulation was a mix of "for" and "against". The proponents of Fintech regulation only felt that it is necessary so that citizens are not exploited at the end of the day. A senior experienced expert said, "Everywhere in the world, there is a level of regulatory oversight that government put in place, well…it is more important to us here because we rather prevent issues than fight fire". On a sharp contrast, 2 others felt fintech regulatory push is as a result of the bankers' committee effort and that the industry should be left open for a while more to unleash without restriction before thinking of whether to regulate or not. A few (3) declined to comment on it because they had not seen any regulatory document

about the plan and would not like to comment on it. The office of OIEE (a subsidiary of NITDA) has been applauded for several initiatives to drive ICT innovation in many areas. The OIEE team was described as "bold and awesome" by one of the interviewees. Many experts shared experiences of how their regional events across the nation have inspired several digital innovations in the country. Anchor Borrowers' Scheme of the Central Bank of Nigeria to help in rice production and other crops. On QQ20, a greater percentage of the interviewees did not see the fintech startups displacing the conventional banks, according to an expert…" they will only give them some disturbing sleepless nights for a while". QQ21 had it all negative. All interviewees noted with pain that the government is not doing enough with digital SMEs through eGovernance.

## Quantitative Analysis

### Demographic Presentation

This section presents the respondents' demographics using frequency distribution tables.

Table 1. Respondents' Sex Distribution

| Sex | Frequency | Percent |
|---|---|---|
| Male | 34 | 65.4 |
| Female | 18 | 34.6 |
| **Total** | **52** | **100.0** |

**Source: Field Survey, 2020**

Table 1 shows that 34.6% of the respondents were female and the majority (65.4%) of them were male.

Table 2. Respondents' Age Distribution

| Age | Frequency | Percent |
|---|---|---|
| 18-30 years | 16 | 30.8 |
| 31-40 years | 11 | 21.2 |
| 41-50 years | 25 | 48.1 |
| **Total** | **52** | **100.0** |

Source: Field Survey, 2020

Table 2 reveals that 30.8% of the respondents were within the age bracket 18-30 years, 21.2% of them were 31-40 years of age, and the remaining 48.1% of them were 41-50 years old.

Table 3 . Respondents' Education Distribution

| Highest Educational Qualification | Frequency | Percent |
|---|---|---|
| First Degree | 19 | 36.5 |
| Postgraduate | 33 | 63.5 |
| **Total** | **52** | **100.0** |

*Source: Field Survey, 2020*

Table 3 shows that 36.5% of the respondents had a first degree and the majority of them were postgraduate degree holders. This indicates that all the respondents are well-educated.

Table 4. Respondents' Year of Employment Distribution

| Year of Employment | Frequency | Percent |
|---|---|---|
| 0-5 year(s) | 12 | 23.1 |
| 6-10 years | 9 | 17.3 |
| 11-15 years | 9 | 17.3 |
| Above 15 years | 22 | 42.3 |
| **Total** | **52** | **100.0** |

***Source: Field Survey, 2020***

Table 4 indicates that 23.1% of the respondents were employed between 0-5 year(s) ago, 17.3% of them have been employed for 6-10 years, 17.3% of them were employed 11-15 years ago, while much (42.3%) of them were employed over 15 years ago. This indicates that most of the respondents have the necessary work experience required for this survey.

### 5.2.2 Analysis of Research Questions

This section of the quantitative analysis presents the respondents' responses to the items of the questionnaire to answer the research questions, using mean and standard deviation. Hence, a mean score of less than 3.0 implies disagree($\bar{x} < 3.0 \Longrightarrow disagree$), while a mean greater than or equal to 3.0 implies agree ($\bar{x} \geq 3.0 \Longrightarrow agree$).

### 5.2.2.1 Research Question One

Is the anti-corruption drive of the government being driven through **eGovernance** initiatives?
This is answered in section A with 8, 6, and 6 items of the questionnaire in tables 5a, 5b, and 5c respectively below:

Table 5a. Respondents' opinions on the effects of eGovernance on increased transparency

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | Mean | STD |
| **1** | E-government effort in Nigeria helps reduce cost | 2.75 | 1.153 |
| **2** | E-government helps reduce errors and employee mistakes | 2.67 | 1.200 |
| **3** | E-government helps reduce violations of rules and guidelines | 2.63 | 1.023 |
| **4** | E-government helps in reducing mediators and brokers | 2.46 | 1.179 |
| **5** | E-government provides good expenses control system | 2.52 | 1.075 |
| **6** | E-government provides objective system to evaluate employees' performance | 2.83 | 1.080 |
| **7** | E-government helps in better recruitment and selection | 2.42 | 1.054 |
| **8** | E-Government makes tracking and auditing easier | 2.37 | 1.172 |

***Source: Researchers Field Survey, 2020***

Table 5a shows that all the mean scores of the items 1-8 above are less than 3.0($\bar{x} < 3.0$). Therefore, it is inferred that the majority of the participants disagreed with the items on increased transparency. Hence, eGovernance in Nigeria does not help reduce cost, does not reduce errors and employee mistakes, does not reduce violations of rules and guidelines, does not reduce mediators and brokers, does not provide good expenses control system, does not provide objective system to evaluate employees' performance, does not help better recruitment and selection, and does not make tracking and auditing easier.

Table 5b. Respondents' opinions on the effects of eGovernance on increased efficiency

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | Mean | STD |
| **1** | E-government provides an open system where citizens can easily access needed information | 2.29 | .977 |
| **2** | E-government provides good audit and accountability system | 2.65 | 1.153 |
| **3** | E-government makes it easy to understand what is required from citizens | 2.69 | .981 |
| **4** | E-government provides a channel for feedback about services and decisions | 2.48 | 1.075 |
| **5** | E-government reduces administrative issues that lead to bribery and favouritisms | 2.42 | 1.073 |
| **6** | E-government provides detailed budgetary information | 2.77 | 1.002 |

*Source: Researchers Field Survey, 2020*

Table 5b shows that all the mean scores of the items 1-6 above are less than 3.0($\bar{x} < 3.0$). Therefore, it is inferred that the majority of the participants did not agree with the items on increased efficiency. Hence, eGovernance in Nigeria does not provide an open system where citizens can easily access needed information, does not provide a good audit and accountability system, does not make it easy to understand what is required from citizens, does not provide a

channel for feedback about services and decisions, does not reduce administrative issues that lead to bribery and favoritisms, and it does not provide detailed budgetary information.

Table 5c. Respondents' opinions on the effects of governance on the level of openness

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | Mean | STD |
| **1** | E-government leads to reduced time of service and simplification of processes | 2.60 | .995 |
| **2** | E-government provides a 24*7 service without employee interference | 2.42 | .977 |
| **3** | E-Government will lead to faster and quality service | 2.85 | 1.073 |
| **4** | E-government will save and reduce commuting time | 2.69 | 1.076 |
| **5** | E-government provides a standardized service provision | 2.60 | 1.107 |
| **6** | Citizens feedback is leading to reduction of drawback of systems | 2.77 | 1.165 |

*Source: Researchers Field Survey, 2020*

Table 5c shows that none of the mean scores of the items 1-6 above is greater than 3.0($\bar{x} \nsucc 3.0$). Therefore, most of the participants disagreed with the items on the effects of eGovernance on the level of openness. Hence, eGovernance in Nigeria does not lead to reducing the time of service and simplification of processes, does not provide a 24*7 service without employee interference, will not lead to faster and quality service, will not save and reduce commuting time, does not provide a standardized service provision, and that citizens' feedback is not leading to reduction of drawback of systems.

From tables 5a-5c above, it could be concluded that the answer to the research question one is that the anti-corruption drive of the government is not being driven through eGovernance initiatives. This finding is in tandem with the work of Oye (2013) where he noted that eGovernment alone cannot work in isolation without social, political, and infrastructural support which will determine if it will be explored to the fullest or not.

#### 5.2.2.2 Research Question Two

What impact is the digital economy drive of the government having on the security issues in the country?
This is answered with 3, 3, 4, and 3 items of the questionnaire in tables 6a, 6b, 6c, and 6d respectively below:

Table 6a. Respondents' opinions on the impacts of the digital economy drive on security awareness

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | Mean | STD |
| **1** | There is more IT security awareness now than before | 3.75 | .926 |
| **2** | Organizations now do more to enhance security of their systems | 3.17 | .901 |
| **3** | There is a reduction in cybersecurity awareness | 3.60 | .869 |

*Source: Researchers Field Survey, 2020*

Table 6a shows that all the mean scores of the items 1-3 above are greater than 3.0($\bar{x} > 3.0$). Therefore, it is inferred that most of the participants agreed with the items on the impacts of the digital economy drive on security awareness. Hence, there is more IT security awareness now than before, organizations now do more to enhance the security of their systems, and that there is a reduction in cybersecurity awareness.

Table 6b. Respondents' opinions on the impacts of digital economy drive on the rate of attack

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | Mean | STD |
| **1** | Security attack has been on the increase in recent times as digital economy advances | 3.75 | .905 |
| **2** | IT security spending has increased in response to increasing attack | 3.37 | .929 |
| **3** | There has been a decline in IT security investment | 3.44 | 1.056 |

*Source: Researchers Field Survey, 2020*

Table 6b shows that all the mean scores of the items 1-3 above are greater than 3.0($\bar{x} > 3.0$). Therefore, it can be inferred that the majority of the participants agreed with the items on the impacts of the digital economy drive on the rate of attack. Hence, security attacks has been on the increase in recent times as the digital economy advances, IT security spending has increased in response to the increasing attacks, there has been a decline in IT security investment.

Table 6c. Respondents' opinions on the impacts of the digital economy drive on the likelihood of a successful attack

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | **Mean** | **STD** |
| **1** | Data theft and leakage | 3.90 | .955 |
| **2** | Phishing | 3.81 | .930 |
| **3** | DoS/DDoS | 3.79 | .723 |
| **4.** | Attack by employee | 3.87 | .950 |

*Source: Researchers Field Survey, 2020*

Table 6c shows that all the mean scores of the items 1-4 above are greater than 3.0($\bar{x} > 3.0$). Therefore, it is inferred that most of the participants agreed with the items on the impacts of the digital economy drive on the likelihood of successful attacks. Hence, there is a likelihood of successful data theft and leakage, phishing, DoS/DDoS, and attacks by employees.

**Table 6d. Respondents' opinions on the impacts of digital economy drive on Cyber Control**

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | **Mean** | **STD** |
| **1** | Technical control (like firewalls, encryption, anti-virus, etc.) | 2.98 | 1.075 |
| **2** | Physical controls (Security cameras, doors, access control, etc.) | 3.27 | .992 |
| **3** | Administrative controls (policies, regulations, etc.) | 2.83 | 1.232 |

*Source: Researchers Field Survey, 2020*

Table 6d shows that most of the mean scores of the items 1-3 above are less than 3.0($\bar{x} < 3.0$). Therefore, it could be inferred that most of the respondents disagreed with the items on the impacts of the digital economy drive on cyber control. Hence, they opined that the digital economy does not impact technical control, and administrative control, while they agreed that the digital economy impacts physical control.

From tables 6a-6c above, it is concluded that the answer to the research question two is that to a great extent, the impact of the digital economy drive of the Nigerian government was felt on security awareness, but it has not reduced the rate of cyber-attacks, the likelihood of successful attack, and did not improve cyber control.

### 5.2.2.3 Research Question Three

Is there any relationship or correlation established between the digital economy and the e-governance drives of the government?
This is answered with 1-6 in the Table 7 below:

Table 7. Respondents' opinions on the impacts of the digital economy and eGovernance

| S/N | ITEM | (N =52) | |
|---|---|---|---|
| | | **Mean** | **STD** |
| **1** | Do you see e-government intervention or impetus as part of what is driving some new start-ups being established in the country | 3.29 | .936 |
| **2** | The planned Fintech regulation will affect the progress of the digital economy | 3.25 | .968 |
| **3** | Digital economy drive of the agricultural value chain has incentivized more people especially farmers to appreciate eGovernance | 3.48 | .874 |
| **4** | eGovernance job has been a good measure of creating digital economy awareness | 3.13 | .908 |
| **5** | eGovernance will do better in an unregulated digital economy environment | 3.37 | 1.189 |
| **6** | Social media platforms (eg Twitter, Facebook, etc) users are fast to appreciate eGovernance initiatives | 3.44 | 1.037 |

*Source: Researchers Field Survey, 2020*

Table 7 shows that all the mean scores of the items 1-6 above are greater than 3.0($\bar{x} > 3.0$). this implies that the majority of the respondents agreed with the items on the relationship or correlation established between the digital economy and e-governance drives of the government. Hence, e-government intervention or impetus is part of what is driving some new start-ups being established in the country, the planned Fintech regulation will affect the progress of digital economy, a digital economy drive of the agricultural value chain has incentivized more people especially farmers towards the appreciating eGovernance, eGovernance job has been a good measure of creating digital economy awareness, eGovernance will do better in an unregulated digital economy environment, social media platforms (eg Twitter, Facebook, etc) users are fast to appreciate eGovernance initiatives.

From Table 7 above, it could be concluded that the answer to research question three is that there is a relationship between the digital economy and the e-governance drives of the Nigerian government.

## 6. Summary and Results

As stated in Chapter One, the research questions being investigated in this work are as follows:

I. Is the anti-corruption drive of the government being driven through eGovernance initiatives?
II. What impact is the digital economy drive of the government having on the security issues in the country?
III. Is there any relationship or correlation established between the digital economy and e-governance drives of the government?

### The study has shown that:

The anti-corruption drive of the Government is not being perceived ("felt") by the masses especially along with transparency, efficiency, and openness as noted by Abu-Shanab et al., (2013). Experts' opinions noted that there are large room of improvements requiring the political will of transformational leadership, (Yammarino et al., 1993) style that will make things happen faster. To be effective, there must be a political leap after technology and cultural jump.

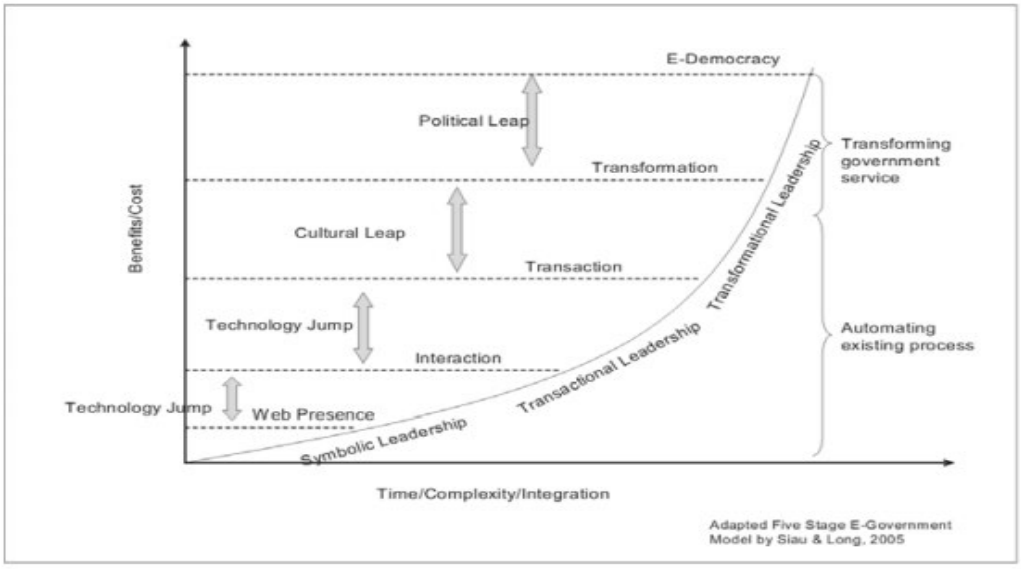


*Fig. 1: Leadership and E-government Development Trajectory*

Figure 1. Leadership and E-government Development Trajectory
Source: Hazman, and Maniam, 2006

Nigeria as a state is being held back from eGovernance/Digital economy winnings as a result more of organizational factors and environmental factors than technological ones. Thus, the first finding validates the TOE framework.

I. The digital economy has contributed to an increase in cybercrime in the country in the validation of Rogers's (1995) theory of Diffusion of Innovations (DOI) aided by the globalization of communication channels that has rendered the world without barriers. This observation also validates the work of Ionescu et al., (2011) that acknowledged that while fraud cannot be eliminated, it can be managed and that economic hardship has also being a trigger of cyber fraud. In a similar view, Bryan et al., (2009) explained that cyber fraudsters are also organized with specializations along the fraudulent value chains starting with information theft through phishing, scamming, hacking till they obtain merchandise or currency in an unsuspecting legitimate economy. Respondents are of the view that more cyber-attacks are reported as digital penetration and appreciation increases. Gupta, (2018) cited how the "Digital India" of PM Narendra Modi is being threatened by cybersecurity increase. According to him, the digital economy is prone to security vulnerabilities and as of September 2016, India has recorded 3.2 million cards that have been compromised through a malware-induced security breach in one of the systems. Security awareness is not commensurate to the level of cybercrime and sophistication. Factors like the likelihood of successful attacks, Okeshola and Adeta (2019), unemployment, Adesina (2017) and others are contributory factors.

II. The digital economy and eGovernment have a positive correlation which is weak but significant. These findings are in tandem with what Dukic et al., (2018) noted how Croatia's growth is also stunted because of the low level of online experiences. It also aligned with the work of Mohammad et al. (2018) that both are correlated.

## 7. Recommendations

1.In November 2019, Shubham Chaudhuri, the Nigeria country director of World Bank unveiled the Digital Economy for Africa (DE4A) Diagnostic Report about Nigeria. National fixed-line infrastructure is very poor in the country leaving mobile traffic alone as the major carrier of all personal and business enterprise data. At the year-end of 2018, Nigeria, Africa, and the world average fixed-broadband penetration rates are 0.04%, 0.6% and 13.6%, (World Bank DE4A Diagnostic Report, 2019). This deficit will stunt the growth of all digital initiatives and must be addressed in the country.

2. According to Dukic et al. (2018), the gains of eGovernment and the digital economy will be obscure without the full synergy of government, businesses, and citizens. There must be an adequate level of congruence and handshaking between these three entities. When the government spends so much amount of money on an electronic service intervention in Nigeria for example, and it takes forever to launch as in the case of Nigeria ePassport, Odeyemi (2019) or results in outright failure, it will not yield any desired effect other than causing user apathy and bad perception on similar projects. Carlton (2019) did a review of a large-scale public IT project – Queensland Health Payroll Project that is more than AUD$1 Billion leading to the discovery of the Theory of Situational Incompetence which means putting experienced persons in a role where they have no experience. He noted that "lack of due diligence on behalf of state officials" and "unwarranted urgency" among others like incompetence, and lack of technical expertise at the leadership level led to failures. The description of Cobb's paradox by Carl and Freeman (2010) is fast becoming an acceptable norm in Nigeria and this should be discontinued and remediated. Events like these squander the capital investment of a nation and the trust of the citizens who never see any benefits

The digital literacy gap must be addressed. Mwanza et al., (2018) explained the problem of the literacy gap within the folds of custodians of indigenous knowledge (IK). This is equally applicable to Nigeria, especially in the remote parts of the country. Mervyn and Allen's (2012) observation on the needed roles of intermediaries in social spaces to carry everybody along is important. The MoU signed by the Federal Government and IBM to bridge the digital gap, Onyedika-Ugoeze (2020) is also a good initiative but must not be delayed with the problems of situational incompetence. Digital literacy initiatives must ensure the poor and less privileged are not left out of the scene so that a balanced socio-economic system can be created across all cadres. Mervyn et al. (2014) noted that merely spending a huge budget of funds isn't enough for these groups, they must be studied in relation to their social-emotional context, low literacy levels and other factors which may jeopardize the realization of the set goals.

There is also the need for the government to ensure the business-technology environment is stable for the new digital economy startups to thrive faster, Sorunke (2019). This is important because government-led initiatives have failed in the past. "Hello Tractor" (https://www.hellotractor.com/home ) for example has been able to solve problems of access to the use of tractors. The OIEE office in NITDA should be empowered and strengthened more to be able to deliver on this goal.

There is a need for increased leadership commitment in the implementation of all eGovernment roadmap development. Leadership must show strong commitment and belief in the efficacy of ICT automation as a solution to current challenges, (Hazman, and Maniam 2006). NITDA should be adequately supported to be able to diligently review IT spending of any government establishment.

The government must also do more to encourage all agencies, ministries, and private companies to improve more on cybersecurity awareness.

## 8. Limitations of Study

The study is constrained with time and resources. The mixed methodology requires more time for both the qualitative and quantitative parts especially when both instruments cannot be deployed at the same time concurrently as in this case.

Another limitation is that expert interviews are largely restricted to staff of NITDA (5 out of 7) which are government employees. There are processes and procedures to be followed which oftentimes are not fast in a timely project endeavor. Most interviewees are also very busy professionals touring several parts of the country on an official assignment and ardifficult to track.

Also, the questionnaires that are used for the quantitative study are administered for both private and government experienced IT professionals. Thus, there may be an element of bias in the response of government officials. Besides, many are very careful during most verbal engagement sessions not to malign (their employer) too much while others find subtle ways to express their feelings of dissatisfaction where necessary.

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