

# Assessing E-Government Implementation in Ekiti State, Nigeria

Wole Michael Olatokun, Busola M. Adebayo

Africa Regional Centre for Information Science, University of Ibadan, Nigeria

## ABSTRACT

This study assessed e-Government adoption in Ekiti state government ministries, agencies and departments. It determined the availability of e-Government resources and infrastructure, the stage of e-government implementation and the challenges. Gartner's four phase of e-Government model was used for analysis. Social survey design approach was adopted. Data were collected with a structured questionnaire administered to the Director of IT and administration in the 29 ministries, agencies and departments. Collected data were structured into grouped frequency distributions. Findings revealed that Ekiti state had made an entrance into e-Government. Resources and infrastructure for e-Governance were available and the State was found to be at the second phase (interaction) of e-Government process and has not successfully demonstrated its ability to progress towards the higher phases of e-government. Infrastructural constraints topped the list of challenges militating against successful application of e-Government in Ekiti state. The study recommended that the state should have a policy for bandwidth optimization and an effective legal framework that could create an environment conducive for promoting and executing e-government.

**Key Words:** *E-government, Information and Communication Technology (ICT), Gartner's four phase of e-Government model*

## 1. INTRODUCTION

The World Bank described e-government as the use of ICT to transform government by making it more accessible, effective, and accountable to its citizenry [1]. It involves the use of technologies such as the Internet to improve the services, functions, and processes of governance [2-6]. The Internet plays a very pivotal role in establishing e-government initiatives [7,8]. Wimmer and Traummuller [9] submitted that the main objectives of e-government should include the following: (1) restructuring administrative functions and processes; (2) reducing and overcoming barriers to coordination and cooperation within the public administration; and (3) the monitoring of government performance. Heeks [4] sees e-government as i-governance or integrated governance, which enables the integration of both the processing of information by people and the use of communication technologies in achieving the objectives of governance. According to Ifinedo [10], e-government does not create good governance, but that good governments use it to better their governance. E-government has the potential of transforming public services, as well as reengineering the fundamental relationship between government and citizen [3,5,6]. Increasingly, advances in ICT have accelerated the growth of e-government in both the developed and developing countries around the world [11,12]. Countries such as the United States, Canada, and Australia lead in the deployment of e-government [11,13,14], and many other governments around the world are making serious efforts to join them [14].

Governments around the world are at various stages of e-Government readiness and implementation as confirmed by the United Nations e-Government readiness reports with European countries generally taking the top spots. The first African country emerged in the survey in 2010, ranking only 66th position; Africa's four regions fall well below world averages for e-Government development [15]. Nigeria, a burgeoning democracy in Africa, has come to realize the fact that no modern or growing

economy can be sustained without the integration of ICT with its development strategy and has adopted this technology towards the growth of its economy. The Federal Government of Nigeria realized that the country was lagging behind in the race to become a digital society, and saw the potential of ICT to empower people; particularly, people with disabilities, women, youth and rural communities [16]. It declared ICT a national priority in the year 2001, resulting in the formulation of a policy for Information Technology in 2001. A major focus of the policy is the development of local capacity for the production of software solutions [17]. The enabling law of the National Assembly known as the National Information Technology Development Act of 2007 was later enacted formally establishing the National Information Technology Development Agency (NITDA) and empowering it to plan, develop and promote the use of Information Technology in Nigeria.

Although the implementation of e-Government has begun in Nigeria, there is little evidence or research to suggest that a clear framework for the adoption of e-Government is being followed. According to Yusuf [18], e-Government activity in Nigeria is low. Most government websites are in the publish stage and a few government organisations are at the transact stage. Some organisations have even by-passed the interact stage, thereby giving no opportunity for citizen requests and feedback [18]. Findings from a recent study by Mundi and Musa [19] showed that only 30% of the Nigerian state websites could be described as having reached the second stage of e-Government and 70% of them were still very much in the publish stage of e-government. These states were Lagos and Imo and the Federal Capital Territory, Abuja. They provided services that invite citizens to interact with them such as message boards and chat forums. They also provided facilities for users to give online feedback.

Some other state governments in Nigeria have launched official state websites so as to give all those

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seeking information on the state access to whatever information they sought and participate in the decision-making process of government [20]. Among these states is Ekiti. Ekiti State was created on 1st October, 1996. The 2006 population census put its population at 2,384,212. The state launched an official website and most of its agencies, ministries and departments have email addresses to communicate with clients. In its 2011 budget, Ekiti state voted N260 million for its Department of Information Technology to improve e-Government process. Its stated reason was a quest to institute a technologically driven workforce that respond more effectively to the needs of the people.

An assessment from two states in the South-western Nigeria (Lagos and Ogun) regarding the awareness, use and sustainability of e-Governance in Nigeria was carried out by Awolaye et al [16]. The perspectives of the government staff as well as other users (non-government staff) were assessed. An interesting finding by Awolaye et al. [16] was that a huge percentage of both government employees and non-government employees were aware of e-Governance in the states, and the governments have achieved this high rate of awareness through the mass media. But in spite of this high level of awareness, only half of the population could be said to be proficient in the use of e-Government. The perception, level of awareness, stage of implementation, as well as the challenges of e-governance in Lagos and Ogun state might differ from that of Ekiti state due to a lot of factors. This study aims at investigating the stage of e-government implementation in Ekiti state using the Gartner Four Phases of E-Government model.

As highlighted above, there has been considerable research on the success of e-Government awareness and implementation in Nigeria, there is obviously a knowledge gap in such evaluation since the situation in individual states remains unexplored. Stemming from the fact that many states in Nigeria are at different stages of development, it is therefore imperative to evaluate the e-Government practices and challenges relative to individual states. Also, some inhibiting factors have been found to affect successful application of e-Government in Nigeria. These include: erratic electricity supply, low Internet diffusion, low adult literacy rate, etc [21]. National Bureau of Statistics 2006 core welfare indicator questionnaire survey highlights the fact that in Ekiti state, 52 % of the population lives in the rural areas and ownership of personal computers was less than 1.0 percent of the total population. Adult literacy rate which was noted to be 75% could also be a pointer to high awareness level of the citizens about e Government. What does this portend for e-government in the state? What is the level of the expectation of Ekiti citizens towards e-Government? What are the e-Government services available and at what stage of e-Governance is the state in? Accordingly, this study hopes to contribute as an intervention to addressing these gaps by applying Gartner four phase of e-Government model. The model suggested the four critical phases of e-government evolution, viz. web presence, interactions, transactions and

transformation. As suggested by Gartner's Model, the third and the fourth phases are significantly more complex and much more expensive to implement. As the levels of cost and complexity are incremental so are the risks and loopholes in relation to new techniques and technologies associated with the higher stages. In order to gain knowledge necessary for accomplishing the stated objectives, the following research questions guided the study:

- (i) What e-Government resources and infrastructure is available in Ekiti state government ministries, agencies, and departments?
- (ii) What is the stage of e-Government implementation in Ekiti state ministries agencies and department?
- (iii) What are the constraints of e-Government adoption in Ekiti state government ministries, agencies and departments?
- (iv) What policy intervention will be pivotal for effective implementation of e-Government in Ekiti State?

## 2. RESEARCH FRAMEWORK

The study adopted Gartner's four phase of e-Government model for analysis. Gartner research [22] classified e-Government into four distinct phases. The Gartner Four Phases of E-Government model demonstrated the progression of e-government in the connected environment, and identified strategy and other factors that contribute to success in each phase. The phases are:

**Presence:** This stage is classified by a simple information-providing Web site of a passive nature, sometimes described as "brochure ware," indicating the same level of functions as a paper brochure. It represents the simplest and least expensive entrance into e-government, but it also offers the fewest options for citizens. A typical example is a basic Web site that lists cursory information about an agency, such as hours of operation, mailing address, and/or phone numbers, but has no interactive capabilities.

**Interaction:** The second stage is interaction. Although interactive Web-based initiatives offer enhanced capabilities, efforts in this group are still limited in their ability to streamline and automate government functions. Interactions are relatively simple and generally revolve around information provision. These types of initiatives are designed to help the customer avoid a trip to an office or make a phone call by making commonly requested information and forms available around the clock. These resources may include instructions for obtaining services, downloadable forms to be printed and mailed back to an agency, or perhaps e-mail contact to respond to simple questions. The interaction stage offers simple interactions between government and citizen (G2C), government to business (G2B), or government agency to government agency (G2G).

**Transaction:** The third stage in the evolution of e-government initiatives is transaction. These initiatives are more complex than simple information provision and

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embody the types of activities popularly associated with e-government. They enable clients to complete entire tasks electronically at any time of the day or night. These initiatives effectively create self-service operations for tasks such as license renewals, paying taxes and fees, and submitting bids for procurement contracts. Although the level of interactivity is of a higher magnitude than second stage initiatives, the activities still involve a flow of information that is primarily one-way (either to government or to the client, depending on the activity). The electronic responses are generally highly regularized and create predictable outcomes. The transaction stage enables transactions such as paying for license renewals online, paying taxes or fees, or submitting bids for procurement contracts.

**Transformation:** The highest order of evolution for e-government initiatives is transformation. Initiatives at this level utilize the full capabilities of the technology to transform how government functions are conceived, organized, and executed. Such initiatives would have the robust customer relationship management capabilities required to handle a full range of questions, problems, and needs. One of the distinctions of these initiatives is that they facilitate the seamless flow of information and collaborative decision making between federal, state, local, public, and private partners. In other words, transformative e-Government initiatives often seek to remove the organizational barriers that promote agency-centric solutions and, instead, promote customer-centric solutions. Some advocates suggest that, at its most advanced level, e-government could potentially reorganize, combine, and/or eliminate existing agencies and replace them with virtual organizations. The highest stage, most closely aligned with the concept of governance, involves a reinvention of how government functions are conceived and organized.

### 3. METHOD

#### 3.1 Research Design

The descriptive survey design was adopted which involved the collection of primary and cross sectional data through the use of a structured questionnaire. A preliminary study visit was made to Ekiti state Directorate of ICTs in April 2011 and the protocol unit, office of the executive governor of Ekiti state to find out about the feasibility of the study. A list of the Ekiti state government organizations was obtained from which the study population comprising Ekiti state ministries, agencies, commissions and boards was determined. Commissions and boards were grouped as departments. Ekiti state liaison office Abuja and Lagos were excluded because of time and distance constraint. According to the protocol department, office of the Executive Governor of Ekiti state, there were 14 ministries, 4 agencies and 20 departments as at July, 2011. The sample frame for this study comprised exhaustive list of the Ekiti state government ministries, parastatals, agencies, boards, and commissions.

However, a sample frame comprising 38 Ekiti state government organizations was used. Ekiti state. A total enumeration of all the state government ministries, agencies and departments in Ekiti state was carried out. The purposive sampling method was adopted in selecting the respondents so as to ensure that selected individuals were those that had adequate knowledge of the Ekiti state e-Government practices. The Directors of Information Technology or their representatives were the primary respondents.

#### 3.2 Instrument for Data Collection

Data were collected with a structured questionnaire designed based on the Gartner four phase of e-government model. It was adapted from Gartner Four phase of e-Government model. The instrument, designed in a four point Likert scale, comprised four sections: Section A elicited information about ministries, agencies and departments such as name of ministry/agency/department, year of establishment. Section B asked questions about e-Government resources available in each ministries/agencies/department while section C sought to ascertain the stage of e-government in Ekiti state using Gartner four phase of e-Government model. Section D, the last section, contained questions that enquired about the challenges encountered by the ministries/agencies/departments in e-Government adoption and implementation processes. The instrument was validated through face and content validity. It was subjected to thorough scrutiny by three experts in e-government research and two others in the field of information science. Modifications were made on the instrument based on their assessments. Copies of the questionnaire were distributed to the respondents by the researchers who had initially sought the permission of the permanent secretaries and head of the various government organizations. A total of 38 copies of the questionnaire were distributed but twenty-nine (29) copies were completed and returned. This constituted 76.32% and was used for data analyses.

#### 3.3 Data Analysis

The data collected were subjected to descriptive statistical analysis in relation to the research questions. Statistical Package for Social Science (SPSS) software was used to carry out the analysis. The variables used to assess e-Government adoption in Ekiti state using 4-point Likert scale were re-coded. Strongly Agree and Agree was re-coded as Agree while Disagree and strongly agree was re-coded as Disagree. Next, a frequency distribution tables was generated for all variables.

### 4. RESULTS

#### 4.1 Available e-Government Resources and Infrastructure

Table 1 presents the E-government Resources & Infrastructure available in Ekiti state. Desktop computers, printers, photocopiers, Digital satellite television and television sets accounted for more than 70 % of e-Government resources and facilities available in ministries/agencies/departments in Ekiti state. Video

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conferencing, fax machines and teleconferencing accounted for the lowest percentages available. Palmtops and recording studios were almost non-existent, with both percentages being 3.4%. It was not surprising that computers, e-mail, printers and photocopiers had a high response rate. This may be due to efficiency and effectiveness of ICT data processing and service delivery couple with ease of data management and storage.

**Table 1: E-government Resources & Infrastructure**

E-government Resources & Infrastructure	Response	
	Available (%)	Not Available (%)
Desktop Computers	96.6	3.4
Laptop Computers	58.6	41.4
Palmtop computers	3.4	96.6
Printers	96.6	3.4
Scanners	69.0	31.0
PABX(intercom)	41.4	58.6
NITEL Phones	17.2	82.8
Office Mobile Phones	24.9	75.1

Walkie-Talkies	20.3	89.7
Close Circuit TV	24.1	75.9
Photocopiers	89.7	10.3
E-government Resources & Infrastructure	Response	
	Available (%)	Not Available (%)
DSTV	86.2	13.6
Recording Studio	3.4	96.6
Video Recorders	27.6	72.4
Video Cameras	37.9	62.1
Digital Cameras	34.5	65.5
TV sets	96.6	3.4
Video CD Player	44.8	55.2
Fax Machine	10.3	89.7
E-mail	69.0	31.0
Internet	58.6	41.4
Website/Web Portal	58.6	41.4
Video Conferencing	10.3	89.7
Teleconferencing	6.9	93.1
VSAT Satellite terminal	31.0	69.0

#### 4.2 Stage of e-Government Implementation

Table 2 presents results of the analysis of the stage of e-government implementation in Ekiti state.

**Table 2: Results of e-government implementation in Ekiti state**

Web Presence	Response (%)		
	Agree	Disagree	Don't know
My agency/ministry/department has its own official website	19.2	80.8	0.0
My agency/ministry/department use the same website as state website	80.8	19.2	0.0
Our official website comprise downloadable forms	58.6	31.0	10.3
Stakeholders can visit our website to obtain a handful of information about my agency/ministry/department	65.5	26.6	5.9
Online services or information is available for tourists	34.5	41.4	24.1
The head of my agency/ministry/department was consulted before the state website was launched	55.2	34.5	10.3
Online services are available for citizen to government transactions	62.1	20.7	17.2
Online services are available for G2C transactions	51.8	24.1	24.1
Interaction	Agree	Disagree	Dont know
Complains can be made online	50.0	32.1	17.9
E-mail contact to respond to simple questions is readily available to stakeholders	55.2	27.6	17.2
Stakeholders can download forms to be printed and mailed back to my agency/ministry/department	37.9	41.4	20.7
Instructions for obtaining services offered by my agency/ministry/department is available online	48.3	38.5	17.2
Transaction	Agree	Disagree	Dont know
Taxes can be paid online(e- taxation)	41.4	37.9	20.7
There is a working database that supports online transaction	62.1	24.1	13.8
Building permit can be booked online	13.8	58.6	27.6
License renewals can be done online	41.4	37.9	20.7
Submission of bids for procurement contracts are done via my agency/ministry/department e-mail address	17.2	58.6	24.1
Transformation	Agree	Disagree	Dont know
Local systems are linked to higher level system within similar functionality	27.6	44.8	27.6
Systems are networked/integrated across different functions	27.7	51.7	20.7
Collaborative decision making between our federal partners and my ministry/agency /department	31.0	48.3	20.7

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### a. Presence

Table 2 shows the Web presence stage of e-Government maturity in Ekiti State. Few government organizations (19.2%) have official websites while 80.8% use the same website as state official website. This suggests that the technology associated with Web presence stage of e-Government as reported by Gartner research is readily available in Ekiti state. Furthermore, from Table 2, 58.6% indicated that their organization websites comprise downloadable forms while 65.5% related that stakeholders can visit their website and obtain information about their respective organizations. 34.5% accounted that online information is available to tourists. This implies that the process involved in the web presence stage of e-Government is in place in Ekiti although it cannot be said to be fully grown.

### b. Interaction

From Table 2 which depicts Gartner's interaction phase of e-Government, fifty percent of the organizations have facilities for complaints being made online, 55.2% have email contacts to respond to questions. However 37.9% have opportunities for stakeholders to download forms to print and mail back to these organizations while 48.3% have instructions online for obtaining services offered.

### c. Transaction

The transaction phase activity of e-Government in Ekiti state is very low. Most organizations have working databases that support online transaction which suggests a good foundation for further transactions in the future. However, transactions such as online payment of taxes, online building permits, and online renewal of licenses and submission of bids for online procurement of contracts have low percentages. This may suggest that although the technology involved in the interaction phase is moderately available there is a major gap in its actualisation in relation to the transaction activities and processes of e-Government adoption.

### d. Transformation

The transformation phase involves a state where there is full adoption of e-Government statutes and policies. It is the highest order of evolution of e-Government initiatives and initiatives at this phase utilise the full capabilities of the technology to transform how government functions are conceived and executed. Most local systems are not linked to higher level systems within similar functionality, most systems are not integrated across different functions while collaborative decisions between Federal and state departments are not well entrenched.

## 4.3 Challenges of e-Government in Ekiti State

Table 3 presents the results of the constraints hindering e-government adoption in Ekiti state.

**Table 3: Infrastructural Constraints**

Infrastructural Constraints	Responses (%)	
	High	Low
Inefficient electricity supply	86.2	13.8
Bandwidth inadequacy	75.9	24.1
low internet access for citizens and employees	86.2	13.8
Inefficient communication channels	62.1	37.9
Cost, time and effort required to re-engineer work process	57.1	42.9
Insufficient ICT infrastructure across the state	79.3	20.7
<b>Cultural Constraints</b>	<b>High</b>	<b>Low</b>
Irregular training of government officials on ICT use	86.2	13.8
Poor maintenance culture	92.9	7.1
Strategy of internal leadership	62.1	37.9
Inadequate training of ICT engineers and programmers	72.4	27.6
Organizational culture that do not support change	55.2	44.8
<b>Economic Constraints</b>	<b>High</b>	<b>Low</b>
Diversion of funds for e-Government	41.4	58.6
Underfunding of e-Government projects	65.5	34.5
Budgetary constraints	62.1	37.9
High cost of purchasing/replacing e-Government resources	82.8	17.2
<b>Legal Constraints</b>	<b>High</b>	<b>Low</b>
Lack of state ICT Policies	55.2	44.8
Lack of a legal framework to guide e-Government practice	58.6	41.4
Lack of organization laws, regulations, and policies that accept paperless transactions	51.7	48.3
Lack of enabling law encompassing privacy and security of data	48.3	51.7
Inadequate legal sanction of new forms of storage and archiving	62.1	37.9

Individual/human Factors	High	Low
Low level of awareness about e-Government	65.5	34.5
Poor attitude to data by and statistics among employees	69.0	31.0
Fear of transparency that e-Government could bring	93.1	6.9
Insufficient knowledge and skills on the use of Internet	79.3	20.7
Resistance to change from traditional ways of doing things	79.3	20.7
Low level of skills on e-government resource use	89.7	10.3

#### 4.4 Infrastructural Constraints

Table 3 presents the result of the analysis on infrastructural constraints faced by Ekiti state ministries/agencies/departments. Inefficient electricity supply and low internet access for citizen and employee topped the list of infrastructural challenges faced by Ekiti state government organizations, 86.2% of Ekiti state government organizations are confronted by this above named impediments while insufficient ICT infrastructure across the state and bandwidth inadequacy accounted for 79.3% and 75.9% responses respectively. Inefficient communication channels, cost, time and effort required to re-engineer work process also serve as minor obstacles in the full adoption of e-Government in Ekiti state.

#### 4.5 Cultural Constraints

As shown in Table 3, poor maintenance culture accounted most for cultural constraints, followed by irregular training of government officials on ICT use, inadequate training of ICT engineers and programmers, strategy of internal leadership and then organizational culture that do not support change.

#### 4.6 Economic Constraints

Table 3 shows that high cost of purchasing /replacing e-Government resources accounted the most for economical constraint, followed by underfunding of e-Government projects and budgetary constraints. Diversion of funds for e-Government projects accounted for the least economic constraint.

**Table 4:** Distribution of Constraints

	Individual Factor		Legal Constraint		Economical Constraint		Cultural Constraint		Infrastructural Constraint	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Valid Low	13	44.8	13	44.8	15	51.7	12	41.4	4	13.8
High	16	55.2	16	55.2	14	48.3	17	58.6	25	86.2
Total	29	100.0	29	100.0	29	100.0	29	100.0	29	100.0

#### 4.7 Legal Constraints

Lack of a legal framework and state policies and lack of organization laws regulation and policies were the major constraints noted. Most of the organizations also noted inadequate legal sanction of new forms of storage and archiving as a major obstacle. Also noteworthy is the lack of enabling laws encompassing privacy and security of data.

#### 4.8 Individual/human factors

The notable individual/personal constraint in the implementation of e-Government in Ekiti state was the fear of transparency that e-Government could bring in the ministries/agencies/departments with 93.1% response. In addition, low level of skills on e-government resource use, insufficient knowledge and skills on the use of Internet and resistance to change from traditional ways of doing things were also identified as major human constraints.

#### 4.9 Distribution of the constraints

Further results presented in Table 4 show the distribution of constraints. Infrastructural constraint (86.2%) posed the greatest challenge to the adoption of e-

Government in Ekiti state followed by cultural constraint with 58.6%. Both individual factors and legal constraint had 55.2% each. However, economical constraint posed the least challenge to the adoption of e-Government in Ekiti.

### 5. DISCUSSION OF FINDINGS

In this section, some of the findings from this study were discussed in line with the research questions that guided the study.

#### Research Question 1: What e-Government resources and infrastructure is available in Ekiti state government ministries, agencies, and departments?

The study reveals that majority of Ekiti State government ministries/agencies/ departments have the following e-Government resources and infrastructure namely: e-mail, Desktop computers (96.6%), printers (96.6%), television sets (96.6%) photocopiers (89.7%), Digital satellite television (86.2%) it is not surprising that these are the most e-Government resources and infrastructure available since they are readily available and also cost effective. This is akin to a study done by Awolaye et al [16] in which most government

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organizations in south west region of Nigeria (more than 80%) had access to computers. This reveals that the resources available for e-Government in Ekiti state are already on the ground and running. It is important that Ekiti state government organizations had a scheme that assists employees in acquiring internet skills. This could increase their proficiency and productivity hence the overall productivity of the organizations.

### **Research Question 2: What is the stage of e-Government implementation in Ekiti state ministries agencies and department?**

The study finds that the technology associated with e-Government is readily available and working in all Ekiti state ministries, agencies and departments. Larger percentage (80.8%) uses the same website as state official website while few of them (19.2%) had their own official websites. The process involved in the web presence stage of Gartner e-Government model is in place in Ekiti State although it cannot be said to be fully developed. Over half of the surveyed ministries, agencies and departments' websites included downloadable forms while sixty five point five percent had necessary information about their respective organizations that could be accessed on the websites. These variables indicate the processes associated with 'presence' stage of Gartner four phase of e-Government model. Over half of Ekiti State government organizations have made provisions for complaints to be made online and email contacts to respond to questions. A few organizations made available opportunities for stakeholders to download forms to print and mail back to their organizations plus instructions online for obtaining services that they offer.

The Ekiti state transaction phase highlighted in this study is in keeping with Yusuf [18], work on e-Government activity in Nigeria. He noted that most government websites were in the publish stage (which is equivalent to presence phase) and a few government organisations are at the transact stage. The result of this study suggests that the transaction phase of e-Government is not fully established. He also noted some organisations had even by-passed the interact stage, thereby giving no opportunity for citizen requests or feedback [18]. Findings from this study however contrast the latter. Mundy and Musa's work found that the content analysis within existing state government websites in Nigeria had a lot of shortcomings with only 30% of websites analyzed providing basic mechanisms for citizens to interact with government services [19]. This was however not supported by the results from this study as more than sixty percent of organizations surveyed had online information for citizen to government transaction while more than fifty percent also had information for government to citizen transaction. Oyekanmi [20] also noted that most state governments in Nigeria had launched official state websites and that communication among government parastatals was done via email as the state governments and their parastatals had email addresses at their states domains.

### **Research Question 3: What are the constraints of e-Government adoption in Ekiti state government ministries, agencies and departments?**

Findings showed that erratic electricity supply and low internet access for citizens and employees topped the list of infrastructural challenges faced by Ekiti state government organizations. Insufficient ICT infrastructure and bandwidth inadequacy were cited by 79.3% and 75.9% respectively. This is in line with a related study carried out by Awoloye et al [16] from which poor infrastructure such as bandwidth inadequacy and incessant cut in public electricity supply were found to be major issues militating against the success of the e-Government in south western Nigeria. Chen *et al.* [23] listed the challenges hindering e-government in developing countries, among which is infrastructural constraint. He identified lack of state informational infrastructure and low internet access for citizens and employees as other major infrastructural constraint in developing countries. The major variables that were considered as likely cultural constraint of e-Government adoption in Ekiti State were poor maintenance culture which accounted the most for cultural constraints in Ekiti State, followed by irregular training of government officials on ICT use, inadequate training of ICT engineers and programmers, and strategy of internal leadership. Shin *et al.* [24] similarly identified six factors associated with e-government success in developing countries, among which are organizational culture and values and the vision and strategy of internal leadership. Also, Mundi and Musa [19] found that poor maintenance culture is part of the barrier that the country must overcome to attain the implementation of mature e-Government development in Nigeria.

Also, high cost of purchasing/replacing e-Government resources was the most important economical constraint, followed by underfunding of e-Government projects and budgetary constraints. Diversion of funds for e-Government projects was the least important economic constraint. The study also reveals legal constraints militating against e-Government adoption in Ekiti state. Lack of a legal framework, lack of state policies and lack of organization laws regulation and policies were the major highlights noted. Most of these organizations noted inadequate legal sanction of new forms of storage and archiving as a major obstacle. Also noteworthy is the lack of enabling laws encompassing privacy and security of data. Shin *et al* [24] identified six success factors among which are financial support, organizational culture and values as well as laws, regulations, and policies. Their study revealed that financial support and organizational culture and values are also determining factors recognized as unique challenges to developing countries. They also found that developing countries need to satisfy certain unique requirements, while fulfilling some conditions that are similarly required for developed countries to achieve successful e-government.

In addition, the fear of transparency that e-Government could bring was the major human/individual

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constraint among ministries/agencies/departments with 93.1% response. Low level of skills on e-government resource use, insufficient knowledge and skills on the use of Internet and resistance to change from traditional ways of doing things were also cited. Like most other states in developing countries, Ekiti State government is yet to have an established Transformation phase. In the context of Gartner's four phase of e-Government, Ekiti State is in the second phase (interaction) of e-Government process and has not been able to demonstrate its ability to progress towards the higher phases of e-government, i.e., 'transaction' followed by 'transformation'. Inadequate Infrastructure such as inefficient electricity supply, low internet access for citizens and employees and bandwidth inadequacy were found to be major issues militating against the success of e-Government implementation in Ekiti State. One of the major ways by which this could be managed better is to have a policy for bandwidth optimization. Also, it is imperative for government to provide stable electricity and also make arrangement for its sustainability in the state.

## 6. CONCLUSION AND RECOMMENDATIONS

In the context of Gartner's typology of e-government, Ekiti State is in the second phase (interaction) of e-Government process and has not been able to demonstrate its ability to progress towards the higher phases of e-government, i.e., 'transaction' followed by 'transformation'. The study established that there is a need to put in greater effort to facilitate the full adoption of e-government in Ekiti state. Infrastructural constraints was denoted as a major clog in the wheels of e-Government success and as such, further inroads can only be achieved when primal resources are available and working. There is a need for a better technical review of the Ekiti state website. At first, the website must be updated such that the required information is made available and up to date. Online payment options must be simplified and standardized, provisions could be made to make payment through Automated Teller Machines (ATM) cards. This is possible through the existing bank networks. For example, Interswitch is the major platform provider for such in Nigeria; it has been a reliable gateway that interconnects the banks within the country. It is noteworthy to state that some merchants have been using the ATM cards successfully here in the country [16]. This is imperative because majority of Nigerians who have bank accounts have access to ATM cards and use it because of its portability, safety and mobility. Also the server with which the websites are housed must be reliable and secure. To attract more users to the website, there may be a need to provide incentives by giving discounts for online payments of any government service or products.

In addition to providing legal recognition to important e-Government functions such as e-communication and e-transactions, an effective legal framework is required to create an environment conducive

for promoting and executing e-government. It also offers safeguard to intellectual property and copyright of e-publications and helps identify, define and prevent the various e-corruption activities. Therefore, an appropriate legislation of an ICT Act together with streamlining and linking other relevant legal codes are important in order to restrain and remedy crimes such as threats against property and individuals, piracy, hacking and fraudulent activities and illicit transfer and posting of data on the web (e.g., viruses and pornographic materials). In addition, specific legal authority needs to be exercised in order to protect intellectual property including copyrights. With respect to data security and interoperability, an appropriate legislation is required to be enacted to establish encryption standards and to accommodate international agreements on interoperability. It is, therefore, the time for Ekiti State and Nigeria as a whole to come forward and immediately enact the ICT Act to facilitate e-Government and integrate itself to the global e-revolution. All the existing ICT related regulatory bodies should be harmonized in order to facilitate effective implementation of e-Government policies, facilities and services in Nigeria. Clearly, we should not see the global trend towards e-government as an attractive fad; nor should we hastily jump into the 'e-bandwagon'. Ekiti still has a lot of work to do in order to make its national e-government programme workable, economically sustainable, efficient and safe for the purposes of its citizenry. Future studies can focus on both government and citizens so that the perception of both sides with regard to e-government implementation could be measured.

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