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Direct and Indirect Factors Influencing Perceived E-Government Performance in Togo: Citizens Perspective

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Abstract

To fulfill the research gap regarding the factors that influence the perceived e-government performance, this study proposes and validates a model that accesses citizen's perception of the issues related to the field. To collect the data and analyses, survey questionnaires were used as instruments of data collection. The stratified sampling method based on the geographic distribution of the population was applied in this study. The questionnaires were filed in hard copies with the interaction between the researcher and the respondent. To analyze the research data, the Structural Equation Modelling (SEM) method was applied. The SPSS and Amos statistic tools were used to compute the model. The finding of this study showed that, (1) The perceived ease of use, decision support, efficiency, transparency and interactivity directly or indirectly influenced perceived e-government performance; (2) It demonstrates how the concept of citizen can be used for evaluating the performance of e-government in developing countries; (3) The study also showed that the lack of awareness campaigns on the use of online public services might affect citizen's perception of e-government performance.

Keywords: E-Government, Conceptual Model, Perceived Performance, Citizens.

Introduction

Governments around the world are investing many resources to develop ubiquitous governance networks and information systems; this is seen as the advent of Digital Era Governance (Sharma, Kumar & Gupta, 2021). E-government performance is the presence or availability of certain important social, political, technological, organizational attributes and economic factors for the successful implementation of e-government (Mensah, 2019). The notion of performance corresponds to the achievement of objectives or expected results, and more largely to value creation. Several studies used cost savings and budget management as a major criterion for performance. Government operations involve interaction and

communication with public Singh et al (2020) therefore e-government begs for usage in the public sector; the optimization of services rendered to citizens. One of the main challenges in public administration and management in the last two decades, has been the digitalization of public services (Dumitrache et al., 2021). E-government is a tool that requires changing organisational behaviour so as to deliver public services more efficiently (Glyptis et al., 2020). The rapid evolution of e-government creates the importance of the continuous evaluation of the performance of e-government in the world (Alcaide-Muñoz & Bolívar, 2015). While some studies began to evaluate and measure the e-government performance, few of them focused on the citizen's perspective of e-government performance.

E-government is perceived as the networking of state institutions (Fan, Yang & Management, 2015) and organized around four main dimensions: improving public services to citizens and businesses, improve public sector performance, increasing democracy , and encompassing all social categories through the digital division and social inclusion activities (Abu-Shanab, 2017). A large chunk literature on the performance of e-government is based on a qualitative analysis of a specific situation (Suri & Sushil, 2017). Even if, in the recent past, studies supported by empirical analysis are regularly reported in the literature on e-Government, e-government performance measurements based on the perspectives of citizens are generally missing. Furthermore, research has shown significant correlations between e-government and corruption reduction, greater transparency (Abu-Shanab, 2013) and cost reduction (West, 2004).

Though quite a number of previous research provide insights on e-government in developing country (Apleni & Smuts, 2020; Shkarlet et al., 2021), very few have centered focus on e-government in Togo. Over the past recent years, Togo rolled out several projects to provide e-government service within the administration, to citizens and to businesses (Chen & Aklikokou, 2018).

Togo is a young country that was recently introduced to e-government and few studies based performance taking into account citizen perception, were conducted. The study on the factors that influence e-government performance in Togo can help governments in countries with the same e-government maturity to better direct the actions of development and to create benefit for the citizens. Therefore, this study is centered on the literature related to the performance of e-government specifically by investigating the performance of e-government from a citizen perspective.

The research questions address the most significant to citizens when evaluating e-government performance in Togo, the relationship between citizen’s perception and e-government performance and key actors involved in e-Government implementation process to achieve performance.

The rest of the paper is presented as follows: The overview and synthesis of related works dealing with the factors that influence the performance of e-government. Then testing and validating the proposed framework. The last part presents the research findings and proposes e-government improvement strategies based on the conclusion of the study.

Literature review

Concept of e-government

Coined in the late 1990s Moon (2002), e-government can be defined as the supply of government information and services online (West, 2004). The concept also includes the use of associated tools to supply citizens with necessary services Stone & Can (2021), with the aim of improving the performance of government agencies, increasing public participation and enhancing the relations with citizens, businesses, and other government institution (Sharma et al., 2022).

The term also holds ground on the use of ICT in government daily activities, the existence and delivery of online public service (Chenand & Aklikokou, 2018). Citizens make use of it to access necessary services anytime and anywhere, with cheaper and fixed standard cost, in a simpler, quick and convenient way (Susanto & Aljoza, 2015). Additionally, contemporary research on the topic underline the participation of citizens and other stakeholders into the design of services, which yields a better performance by e government services in the future (Bell&Nusir,2017). The implementation of e-government is the result of from successive reforms within the public administration systems over the years (Mensah & Mi, 2017).

Measuring Performance in the Public Sector

The performance of public services constitutes a political and administrative concern for more than a century ago (Singh et al., 2020). At the beginning of the 20th century, reformers in the United States Williams (2003), and elsewhere in the world Johnsen (2005), have called for a report on how public funds were spent and what they achieved. In England, for a large part of the twentieth century, measuring the performance of public services systematically focused on the financial aspect. It showed that the public funds were spent for legitimate purposes. Achievements were measured in raw terms: The number of homes built, exams successful, miles of new roads. However, towards the end of the 20th century, a new model of measurement performance has been developed but still not clear in the literature (Abu-Shanab & Haider, 2015; Cook, 2000). Navarra & Cornford (2005), defined public performance in four key areas: Decentralization, Effectiveness, Commercialization, Accountability, and Transparency.

E-Government Performance Studies

In e-governance, the concept of performance as a factor of good governance is minor (Rose, Persson, & Heeager, 2015). Another study focused on the various perspectives related to the evaluation of e-government services such as client perspectives, financial perspectives, business and innovation perspectives and learning (Alhyari, Alazab, Venkatraman, Alazab, & Alazab, 2013). The Agency for the Development of Electronic Government in France proposes a framework for assessing the public value of information technology in government (Deng, Karunasena, & Xu, 2018) with a focus on the financial benefits of projects online administration for citizens. (Sorrentino & Ferro, 2008) studied the public value of e-government based on the social, operational, financial and strategic values of e-government. (Omar, Scheepers, & Stockdale, 2011) proposed a framework for assessing the public value of e-administration by examining the quality of service delivery.

Table 1
Comparison of e-Government Performance Models

Framework	Description	Key variables
Evaluating the performance of e-government in developing countries : A public value perspective (Deng, Karunasena, & Xu, Sri Lanka , 2018)	Contributions of e-government in relation to improving governmnt performance	• . Quality of Information • Functionalities of e-Services • User-orientation • Organisational Efficiency • Openness • Responsiveness
An empirical and comparative analysis of E-government performance measurement models: Model selection via explanation, prediction, and parsimony (Sharma, P.N, 2018)	Two prominent modeling paradigms of the e-government satisfaction-trust relationship	• Efciency of service • Website quality • Citizen satisfaction • Disconfrmation • Citizen Trust in Governmen

E-government Contribution to Better Performance by Public Sector (Emad Ahmed Abu-Shanab, Qatar 2017)	Contributions of e-government in relation to improving government performance	• Time Savings Dimension • Advertisement Savings Dimension • Improving Operations Dimension • Increasing Awareness Dimension • Marketing Government Dimension • Improve Revenues Dimensions

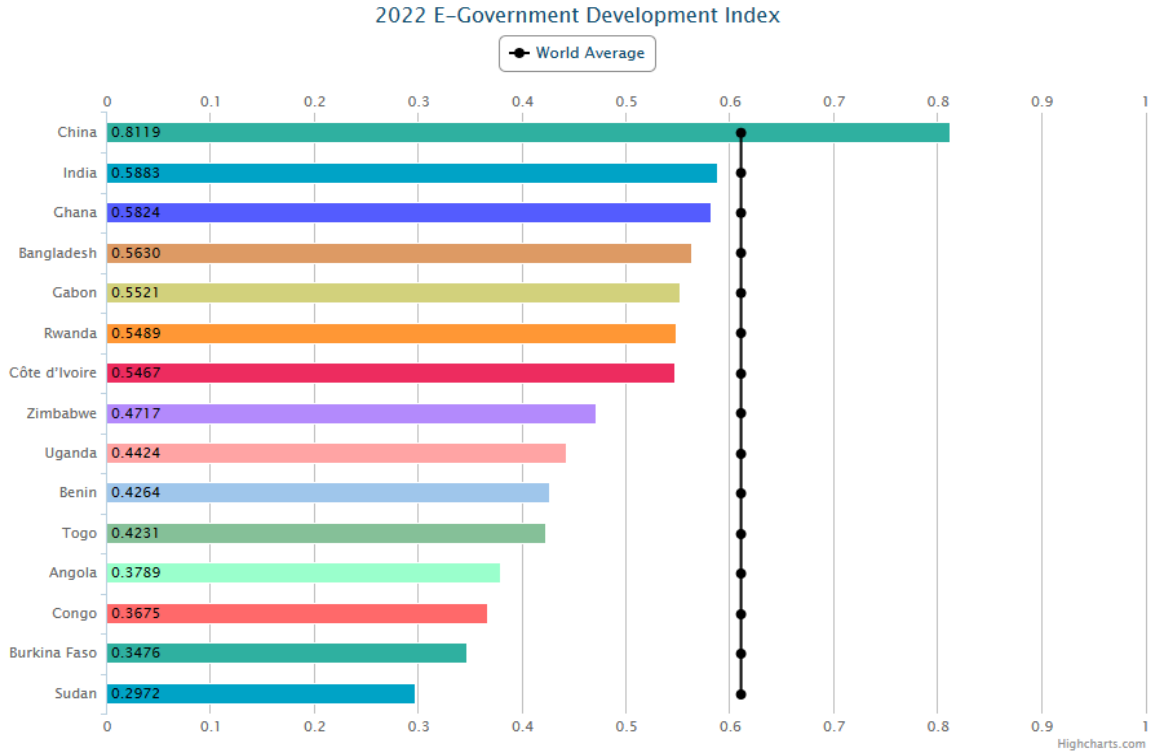
E-Government Development Index

The E-Government Development Index presents the state of E-Government Development of the United Nations Member States. Along with an assessment of the website development patterns in a country, the E-Government Development index incorporates the access characteristics, such as the infrastructure and educational levels, to reflect how a country is using information technologies to promote access and inclusion of its people. The EGDI is a composite measure of three important dimensions of e-government, namely: provision of online services, telecommunication connectivity and human capacity (UN E-Government Survey 2022).

Ranking Group	Low-EGDI				Middle-EGDI				High-EGDI				Very High-EGDI			
Rating class	L1	L2	L3	LM	M1	M2	M3	MH	H1	H2	H3	HV	V1	V2	V3	V4
Quantité	1st	2nd	3rd	Quantité	1st	2nd	3rd	Quantité	1st	2nd	3rd	Quantité	1st	2nd	3rd	

Very High-EGDI group has been further sub-divided into four quartiles:

- HV-first top quartile, EGDI scores raining from 0.8989 to 0.9758
- V3-second quartile, EGDI scores raining from 0.8375 to 0.8614
- V2-tired quartile, EGDI scores raining from 0.7991 to 0.8361
- V1-forth quartile, EGDI scores raining from 0.7565 to 0.7980



Country	Group	Rating Class	Rank 2022	EGDI 2022	MSQ
China	VHEGDI	V2	43	0.8119	No*
India	HEGDI	H2	105	0.5883	
Ghana	HEGDI	H2	106	0.5824	No*
Bangladesh	HEGDI	H2	111	0.5630	
Gabon	HEGDI	H2	115	0.5521	No*
Rwanda	HEGDI	H1	119	0.5489	
Côte d'Ivoire	HEGDI	H1	120	0.5467	No*
Zimbabwe	MEGDI	MH	138	0.4717	No*
Uganda	MEGDI	MH	144	0.4424	Yes*
Benin	MEGDI	M3	149	0.4264	
Togo	MEGDI	M3	151	0.4231	No*
Angola	MEGDI	M3	157	0.3789	No*
Congo	MEGDI	M2	161	0.3675	No*
Burkina Faso	MEGDI	M2	166	0.3476	
Sudan	MEGDI	M1	176	0.2972	No*

Research Constructs and Hypotheses

The proposed research model (Figure 1) illustrates the demand-side perspective of e-government adoption and integrates constructs from Structural Equation Modelling (SEM). SEM is a popular approach for testing hypothesized theoretical models that contain certain relationships between and among observed variables and latent variables (Byrne, 2010). It examines the extent to which the hypothesized model is supported. To adequately apply SEM in the data, several tests for missing values, outliers, and data normality are performed (Hair, Black, Babin, Anderson, & Tatham, 2006).

Perceived Usefulness

The primary origin of perceived usefulness lies in the theory of reasoned action and the theory of planned behavior (Ajzen, 1991). (Davis, 1989) defined perceived usefulness as the degree to which a person believes that using an application would enhance his/her job performance. Author scholars have adapted the construct perceived usefulness (PU) as performance expectancy (Dwivedi et al., 2017; Venkatesh et al., 2003). For instance in the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) and the Unified Model of E-Government Adoption (UMEGA) model (Dwivedi et al., 2017). The mediating effect of Perceived usefulness has also been tested in the literature (Santhanamery & Ramayah, 2018). While the construct has mainly been used in the adoption of IS, (Gefen, Straub, & Boudreau, 2000) perceived usefulness has been proven as a key determinant of end-user satisfaction with ERP (Enterprise Resource Planning) system (Calisir & Calisir, 2004). Based on the context of this study, this construct is defined as the degree to which an individual believes that using e-Government services will be beneficial to him or her and better than the traditional public services delivery system. The underlying sense of this definition is that the usefulness of e-government services relates to how the system performs better than the existing traditional delivery of public services. As such in this study, it is hypothesized that:

H1: Perceived usefulness has a positive and significant influence on perceived e-government performance.

Perceived Ease of Use

Perceived Ease Of Use (PEOU) is the degree to which a person believes that using an application would be free of effort (Davis, 1989). Defined as a fundamental construct of the Technology Acceptance Model (Zafiropoulos, Karavasilis, & Vrana, 2012), the importance of perceived ease of use in ICT adoption process has been noted in many research (Agufana, Too, & Mukwa, 2018). The construct has been adapted in the UTAUT model as Effort expectancy, defined as the degree of ease associated with the use of the system (Alalwan, Rana, Dwivedi, & Algharabat, 2017; Venkatesh et al., 2003). Perceived ease of use, eventually relates to the performance of an information system. Additionally Perceived ease of use is found to have a significant effect on perceived usefulness (Abdullah & Ward, 2016; Susanto & Aljoza, 2015; Zafiropoulos et al., 2012). Proposed to be a key predictor of performance expectancy, effort expectancy was found to have a strong correlation with performance expectancy (Alalwan et al., 2017). Furthermore, (Calisir & Calisir, 2004) suggested the indirect effect of perceived ease of use through perceived usefulness in their study.

H2: Perceived ease of use has a positive and significant influence on perceived e-government performance.

H3: Perceived ease of use has a positive and significant influence on perceived usefulness.

Decision Support

The Decision support process remains one of the key characteristics of e-government services. (Suri, 2016) advocates that e-government improves decision support in terms of better planning, decision-making, and monitoring and control. According to (Wook Seo, Chang Lee, & Sung Lee, 2013) the quality of decision is closely related to performance (perceived e-government performance) and plays an important role as a facilitator in improving task performance (perceived usefulness). In the context of this study, the

availability of decision support for e-government services from management or public authorities influences how citizens perceived e-government as useful and well-performing.
Decision support Digitization of services and online transactions contribute to better decision-making, monitoring, and control at the level of officials as well as beneficiaries, which is captured through this variable. For example, a farmer who has online access to commodity prices/arrivals information and storage facilities can monitor prevailing prices, store his produce or select a market for selling his produce when conditions are favorable. This micro-variable reflects better decision support in terms of improved planning and decision-making. Mapping of this variable with reviewed literature and project evaluation report is presented in UNESCO, (Andersen et al., 2010; Bannister, 2002; Evans & Yen, 2006). The performance constructs have been subjected to factor and reliability analysis and found to satisfy the validation criteria. It is therefore hypothesized that:
H4: Decision support from management has a positive and significant influence on perceived e-government performance.
H5: Decision support from management has a positive and significant influence on perceived usefulness.

Efficiency
The Efficiency of e-government service refers to the ratio of social benefits obtained from e-government services to the resources consumed. (Suri, 2016) relates the concept of efficiency of e-government to public services improvement in terms of fast execution, simplification of government procedures, reduced paperwork and decreased communication cost. Such benefits may influence citizens' perception of how useful and easy it is to use e-government services. (Cho et al., 2015) have proposed that self-efficacy (a measure of efficiency) which is an individual's inner factor positively affected perceived ease of use. The following hypotheses have been suggested:
H6: Efficiency has a positive and significant influence on perceived usefulness.
H7: Efficiency has a positive and significant influence on perceived ease of use.

Transparency
In the context of e-government, Suri (2016) defines transparency in terms of reliability and comprehensiveness of information delivery, easily accessing information and fairly delivering information. Eventually, the existence of a certain level of transparency in e-government services appeals to citizen's perception of the system. Even though the relationships between system transparency and perceived usefulness and system transparency and perceived ease of use were tested in the study of Choi, Park & Rho (2017), the authors suggested that transparency in a system favors a positive perception of the system capabilities. (Al-Jabri & Roztocki, 2015) argued that a higher level of transparency, resulting from the implementation of information systems, might lead to a positive perception of the usefulness and ease of use of the system. In this study context, it is hypothesized that:
H8: Transparency has a positive and significant influence on perceived usefulness.
H9: Transparency has a positive and significant influence on perceived ease of use.

Interactivity
The concept of interactivity of e-government services relates to public service improvement in terms of enhanced exchanges between service providers and users (Suri, 2016). Interactivity remains an essential component of e-government services. Kirk, Chiagouris &

Gopalakrishna (2012), proposed that the influence of interactivity was moderated by perceived usefulness. (Yi & Jiang, 2007) suggest that the interactivity of a website induces users' control and systems' feedback, thus enhances their perceived usefulness to the website. Interactivity was found to be a significant determinant of perceived usefulness (Yi & Jiang, 2007). In their study, they also found that interactivity factors (i.e. controllability, responsiveness, two-way communication, and personalization) had a positive and significant effect on perceived usefulness and perceived ease of use.

Since interactivity is an important characteristic of marketing communication, hotel website interactivity is vital to attract customer attention towards the online purchase or online booking. Therefore, customer perception of hotel website interactivity is among the most important features associated with this medium. (Abdullah & Ward, 2016) defined perceived interactivity as the degree of users' capability to modify the form and content of a mediated environment in real-time. Furthermore, the interactivity appears like a noticeable feature to differentiate the web from other traditional media (Maddala, Wu, & statistics, 1999). In their conceptual paper, (Abdullah & Ward, 2016) proposed that perceived website interactivity influences customer perceived value, represented by the trade-off between monetary benefits, non-monetary benefits, security and privacy as sacrifices. Perceived interactivity also relates to customers' online trust and customers have a higher intention to engage with the media content when they trust it. In support, based on their empirical findings, (Jeon, Jang, & Barrett, 2017) found that perceived website interactivity influences repurchase intentions through perceived utilitarian value and online trust. Therefore, we suggest the following propositions:

H10: Interactivity has a positive and significant influence on perceived usefulness.
H11: Interactivity has a positive and significant influence on perceived ease of use.

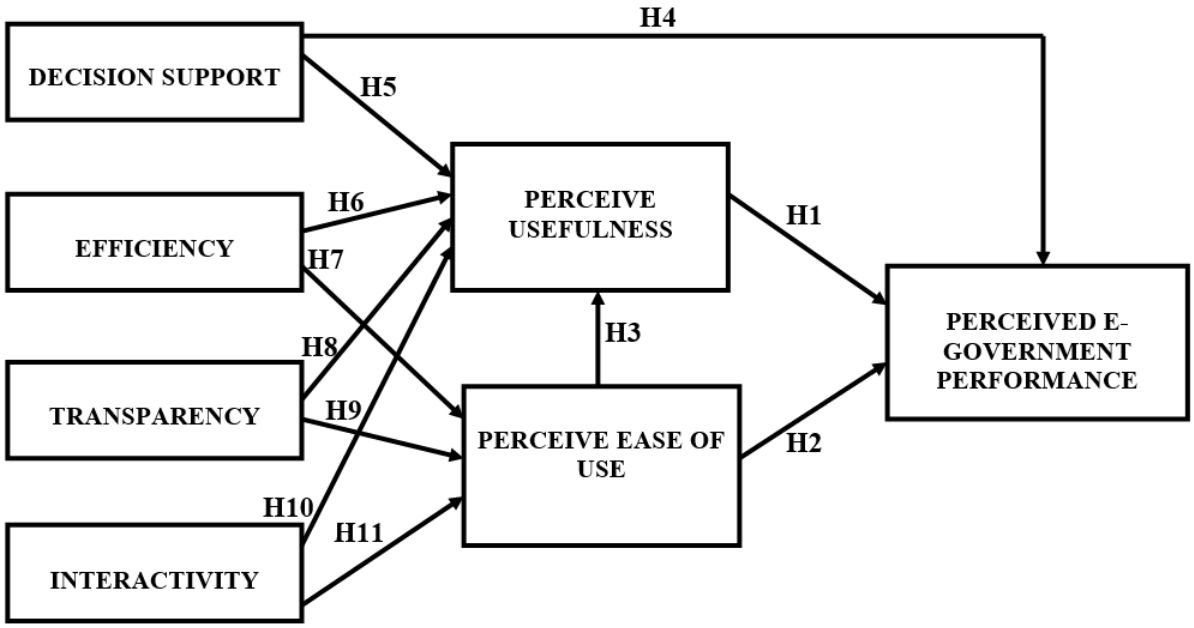


Figure 1. Proposed Conceptual Model

Research Design and Implementation

Questionnaire Development

The study aims are to seek the factors influencing the performance of e-government by basing on the perception of citizens and from the results, to develop strategies for improving the performance of e-government in developing countries. To achieve this goal, a closed questionnaire was developed for data collection. The questionnaire consists of three sections. The first section contains an introduction to the objectives of the research, a description of the terms used in the questionnaire and the researcher's contact details. The second section is designed for the collection of demographic information of the participants. The third section is used to collect the information needed to test and validate the conceptual framework. 31 questionnaires items from the literature review were used.

A five-point Likert scale was used to get citizens' perceptions of e-government performance. Such a scale is well known as a summary scale on which a respondent can record their agreement or disagreement on each element of a question on an intensity scale. It is reliable and often recommended for getting people's attitudes, values and perceptions. The Likert scale used in this study has five points with the value "1" represents "no value at all" and the value "5" represents "very valuable". To guarantee and confirm the validity of the content, the questionnaire was pre-tested with the help of academic researchers and online government users.

Questionnaire Distribution

The population of the survey is Togolese citizens with experience in e-government. A stratified random sampling strategy was used to obtain the sample based on the geographic dispersion of the participant (Silvia, 2011). In total, 650 users were selected in the urban, rural, academic, public and private sectors of Togo. Survey participants are recruited from internet café, universities, government departments, private companies and 17 randomly selected telecentres.

Data Analysis

481 people answered the survey. Among them, 117 participants failed to fill the questionnaires. The number of completed questionnaires was 364. The response rate to the survey was 76%. In this research, the reasons for non-response and unusable responses could be due to the low e-government usage, educational level of respondents, the lack of interest of respondents for the research topic and other factors.

Sample Demographics

The descriptive analysis of the data indicates that the majority of the respondents are in the range of 16-25 years (53.4%) and 26-35 years (29.5%). Male respondents (55.4%) outnumbered female respondents. 64.5% of the respondents have an undergraduate education background and 49.9% are still learners. 25.9% of the respondents work in the private sector and 11% work in the public sector. The majority of the respondents use internet “often” (45.7%) and “very often” (43%). In total 61.2% of the respondents have used an e-government service before.

Measurement Model

SEM, which is a popular approach for testing hypothesized theoretical models (Byrne, 2010), was used in this study and the Exploratory Factor Analysis (EFA) was also used to ensure the validity of the data and to explore factor structure (Moslehpour, Pham, Wong, & Bilgiçli, 2018). According to (Gorsuch, 1997), EFA has been extensively used as a technique for scales, subscales development, and is necessary as a preliminary study for confirmatory analysis.

The Confirmatory Factor Analysis (CFA) is applied to confirm the factor structure extracted from the Exploratory Factor Analysis to improve the overall model fit (Moslehpour et al., 2018). The goodness-of-fit was estimated using the Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Normed Fit Index (NFI) and Root Mean Square Error of Approximation (RMSEA). In this study, reliability and convergent validity are estimated for each construct using average variance extracted and composite reliability.

The coefficient of Cronbach's alpha is popularly used to measure internal consistency among the survey instruments (Moslehpour et al., 2018; Tobbin, 2010). According to (Fornell & Larcker, 1981), to fully satisfy the requirements for discriminant validity for any two constructs, the AVE estimates of the two constructs have to be greater than the shared variance estimate (squared correlations). (Tobbin, 2010) suggests that SEM is very useful to not only evaluate the causal relationship between variables but also to verify the compatibility of the research model used. According to (Moslehpour et al., 2018), Structural Equation Modeling (SEM) technique is used to analyze the measurement model, estimate the structural model and test the proposed research hypothesis.

The Exploratory Factor Analysis by Principal Components with Varimax Rotation shows that most items loaded on their expected factors. To reduce subjectivity in data interpretation, only variables with factor loadings greater than 0.50 were considered and used in further analysis. Cross loading itemPU1 was dropped from further analysis.

Table 2
Factor loadings

	Component						
	1	2	3	4	5	6	7
Eff1	**.748**	.203	.219	.109	.123	.169	.114
Eff2	**.809**	.146	.203	.137	.166	.139	.066
Eff3	**.811**	.180	.145	.126	.211	.155	.112
Eff4	**.732**	.021	.239	.111	.173	.233	.213
Trans1	.233	.127	**.720**	.206	.207	.070	.139
Trans2	.285	.166	**.734**	.043	.064	.259	.183
Trans3	.224	.248	**.716**	.189	.058	.120	.015
Trans4	.109	.084	**.678**	.237	.230	.264	.141
Inter1	.278	.275	.218	.105	.126	**.746**	.096
Inter2	.273	.129	.275	.032	.143	**.769**	.208
Inter3	.154	.102	.145	.145	.332	**.792**	.142
DecSup1	.274	.278	.222	.075	**.741**	.177	.086
DecSup2	.192	.187	.166	.198	**.799**	.227	.165
DecSup3	.226	.149	.121	.237	**.731**	.191	.217

PEOU1	.122	**.746**	.176	.286	.087	.181	.062
PEOU2	.122	**.746**	.120	.214	.191	.167	.292
PEOU3	.217	**.758**	.190	.195	.189	.032	.230
PEOU4	.151	**.746**	.163	.225	.205	.168	.240
PU2	.189	.203	.293	**.742**	.211	.062	.059
PU3	.177	.238	.197	**.844**	.144	.094	.036
PU4	.079	.326	.106	**.802**	.127	.109	.202
PERF1	.067	.247	.142	.436	.050	.052	**.666**
PERF2	.159	.294	.136	-.062	.180	.203	**.786**
PERF3	.247	.194	.146	.125	.225	.185	**.681**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

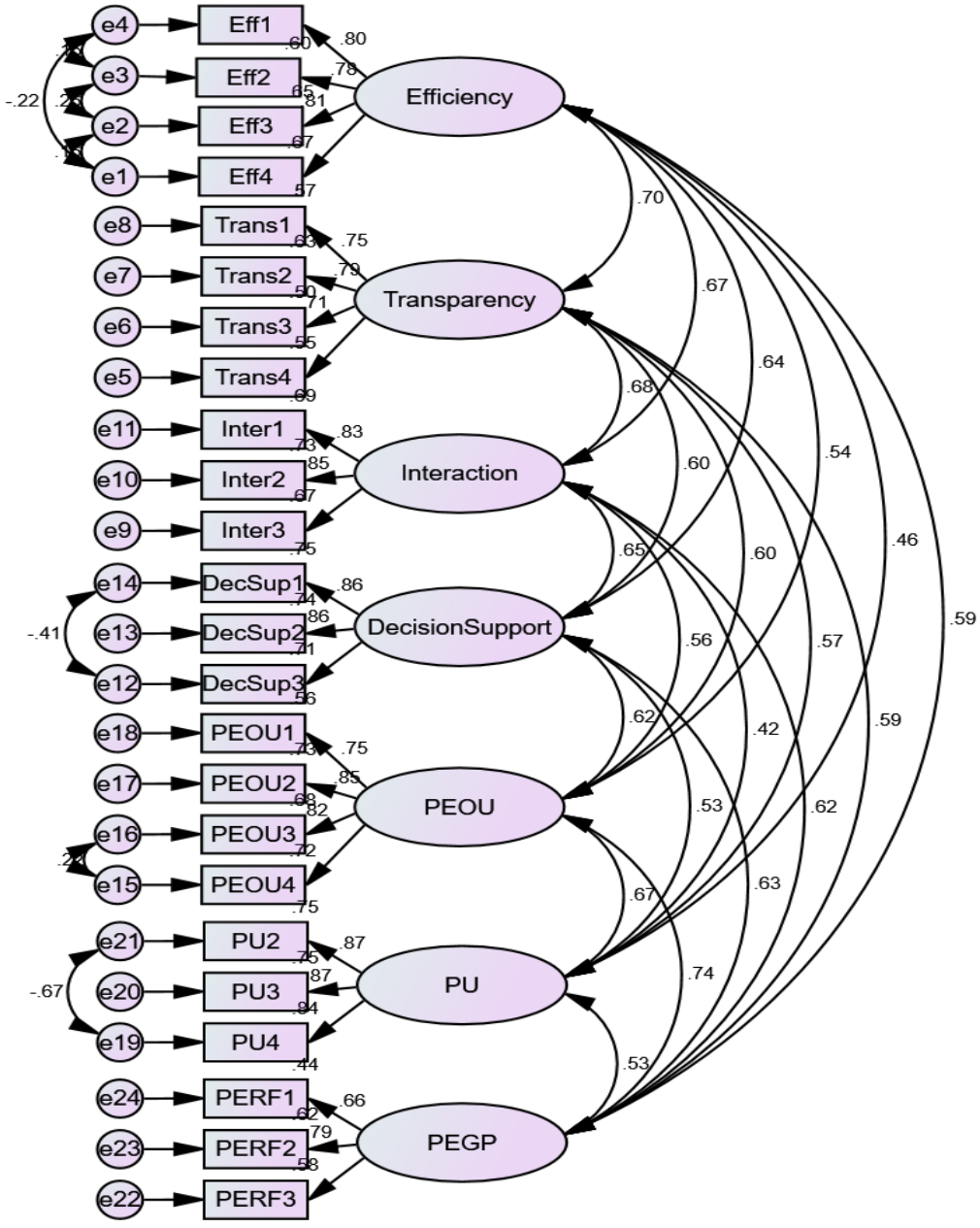


Figure 2: Confirmatory Factor Analysis

Table 3
Model fit summary

Fit index	Model	Recommendation
CMIN/df	2.985	≤ 3.00
The Goodness of Fit Index (GFI)	0.873	> 0.90
Normed Fit Index (NFI)	0.892	> 0.90
Comparative Fit Index (CFI)	0.925	> 0.90
Root Mean Square Error of Approximation (RMSEA)	0.074	< 0.08

The Confirmatory Factor Analysis results indicated that the recommended thresholds of acceptable fit were satisfied, thus the proposed model is a good fit to the data.

Common Method Bias

Table 4
Harman's single-factor test results in EFA

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.800	45.002	45.002	10.800	45.002	45.002
2	2.088	8.699	53.700			
3	1.484	6.184	59.884			
4	1.191	4.962	64.846			
5	1.164	4.849	69.695			
6	.918	3.824	73.519			
7	.857	3.571	77.090			
8	.577	2.402	79.492			
9	.544	2.265	81.756			
10	.494	2.060	83.817			
11	.464	1.933	85.750			
12	.432	1.799	87.549			
13	.395	1.646	89.195			
14	.337	1.404	90.598			
15	.318	1.326	91.925			
16	.314	1.309	93.234			
17	.273	1.137	94.372			
18	.265	1.103	95.474			
19	.238	.990	96.464			
20	.217	.903	97.368			
21	.194	.810	98.178			
22	.160	.666	98.844			
23	.149	.621	99.465			
24	.128	.535	100.000			
Extraction Method: Principal Component Analysis.						

In this study, Harman's single factor test in SPSS was used to check the Common Method Bias (CMB). This was achieved by exploratory factor analysis with no rotation (Verkijika & De Wet, 2018). The results indicated that the single factor accounted for less than the cut-off value of 50 %, thus the data set is perceived to present no common bias.

Composite Reliability, Convergent and Discriminant Validity

Table 5

Cronbach's alpha

Constructs	Cronbach's Alpha	N of Items
Efficiency	0.887	4
Transparency	0.834	4
Interaction	0.873	3
Decision support	0.875	3
Perceived Ease of Use	0.895	4
Perceived Usefulness	0.871	4
Perceived e-Government Performance	0.776	3

The Cronbach's alpha results for each of the constructs are above 0.7, indicating that the scales used in this study are reliable.

Table 6

AVE, CR and shared variance estimate

	AVE	CR	Eff	Trans	Inter	DecSup	PEOU	PU	PEGP
Eff	0.642	0.877	**0.642***						
Trans	0.562	0.837	0.491	**0.562***					
Inter	0.697	0.873	0.453	0.466	**0.697***				
DecSup	0.730	0.890	0.407	0.365	0.419	**0.730***			
PEOU	0.672	0.891	0.288	0.364	0.315	0.388	**0.672***		
PU	0.780	0.914	0.207	0.323	0.176	0.281	0.446	**0.780***	
PEGP	0.546	0.782	0.348	0.352	0.386	0.393	0.541	0.276	**0.546***

*Average Variance Extracted values

In this study, reliability and convergent validity are estimated for each construct using average variance extracted and composite. All the AVE estimates are above the recommended level of 0.50 (Fornell & Larcker, 1981), implying convergent validity. The composite reliability estimates are above the recommended level of 0.7 (Zafiropoulos et al., 2012). All the AVE estimates are greater than the shared variance estimate (squared correlations). The requirements for discriminant validity are fully satisfied in this study.

Overall, the findings of all indicators provide enough evidence to support the reliability and validity of the data set.

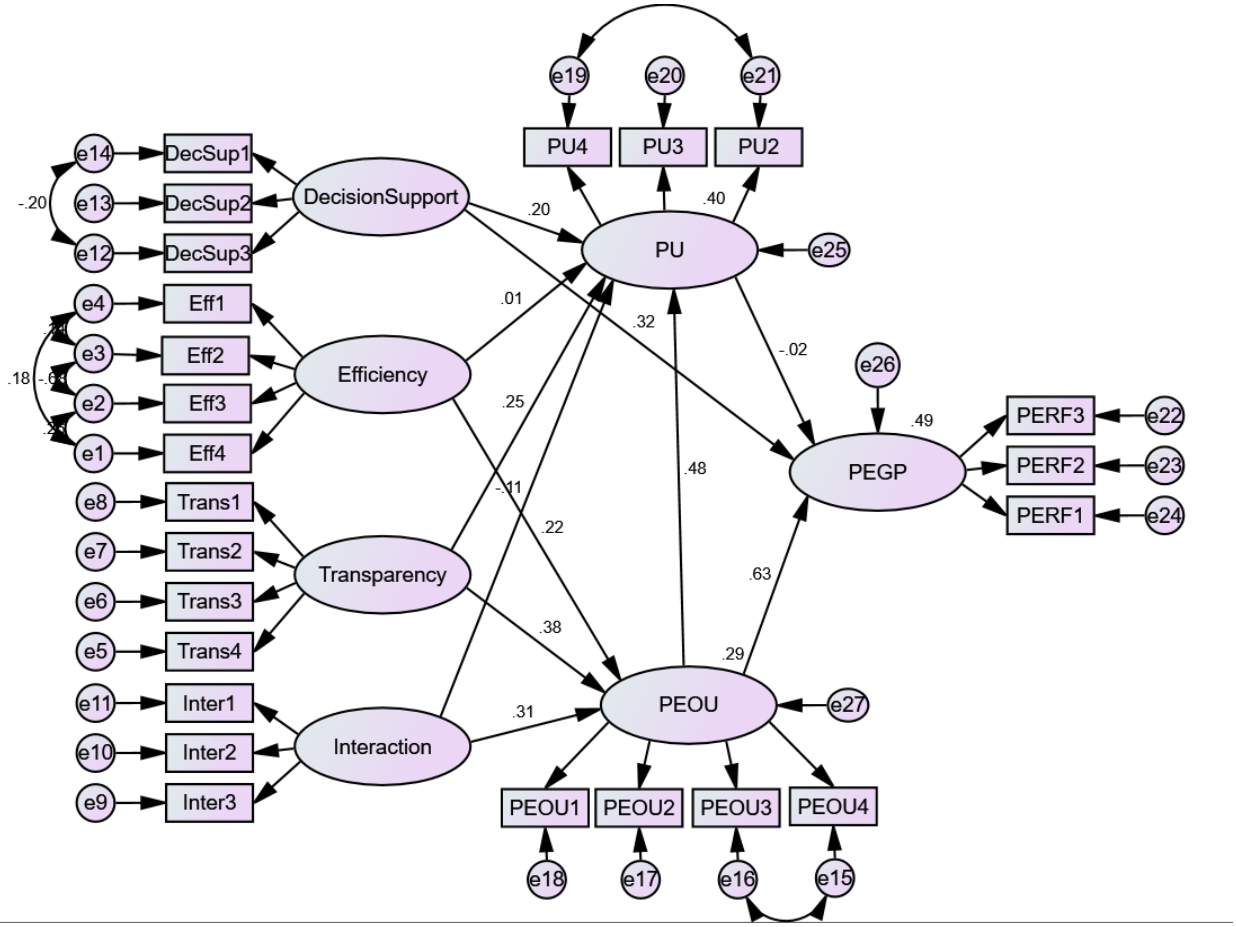


Figure 3: Model testing results

Table 7
Regression results

			Estimate	S.E.	C.R.	P	Label
PEOU	<---	Efficiency	.225	.066	3.978	***	
PEOU	<---	Transparency	.376	.064	6.319	***	
PEOU	<---	Interactivity	.313	.055	5.605	***	
PU	<---	PEOU	.479	.075	7.485	***	
PU	<---	DecisionSupport	.197	.058	4.100	***	
PU	<---	Efficiency	.015	.064	.321	.748	
PU	<---	Transparency	.247	.071	4.405	***	
PU	<---	Interactivity	-.113	.059	-2.192	.028	
PEGP	<---	DecisionSupport	.323	.060	5.225	***	
PEGP	<---	PU	-.019	.053	-.288	.774	
PEGP	<---	PEOU	.631	.076	7.751	***	

Discussion

The study aims are to understand citizens' perception of e-government performance in the Togolese context by testing the significance of Perceived usefulness, Perceived ease of use, Decision support, Efficiency, Transparency, and Interactivity. Validity and Reliability of the data items were established and the Model fit confirmed. The Structural Equation Model (SEM) revealed the causal relationships between the antecedent variables, the mediating variables, and the outcome variable and perceived e-government performance.

Based on the results, perceived usefulness has no significant influence on perceived e-government performance (β = -0.019; P>0.05). H1 is rejected. The significant effect of perceived usefulness has been validated on use intention and users' satisfaction (Calisir & Calisir, 2004; Gefen et al., 2000; Jahangir & Begum, 2008; Santhanamery & Ramayah, 2018). The usefulness of a system does not explain how the performance of the system will be. This limits the role of perceived usefulness as a mediator between the antecedents' variables and perceived e-government performance. However, perceived ease of use has a positive and significant influence on perceived e-government performance (β = 0.631; P < 0.001), satisfying H2. Other studies have also confirmed the significant effect of perceived ease of use on perceived usefulness (Calisir and Calisir, 2004; Susanto and Aljoza, 2015; Abdullah and Ward, 2016; Baabdullah, 2016; Alalwan et al., 2017). The high path coefficient between perceived ease of use and perceived e-government performance also indicates a strong relationship between the two factors. As suggested by Veeramootoo et al. (2018), citizens rely greatly on the technical capabilities and ease of use of an information system. This result corroborates with existing literature (Alryalat et al., 2013; Moses et al., 2013; Alalwan et al., 2016; Baabdullah et al., 2016; Mensah and Mi, 2018). The more easy citizens perceived e-government services performance to be, the more they will make use of them. As suggested by Veeramootoo et al. (2018), citizens rely greatly on the technical capabilities and ease of use of an information system. Furthermore, the direct effect of perceived ease of use on perceived e-government performance, suggests the importance of making e-government systems free of complication and easy to use. The easier citizens perceived e-government systems, the more performing they will perceive it. Besides, the hypothesis H3 is also supported; perceived ease of use has a significant influence on perceived usefulness (β = 0.479; P < 0.001). The significant relationship between perceived ease of use and perceived usefulness is consistent with the literature. The less complicated the e-government system is to use; the more users will find it useful. In his study, (Tobbin, 2010) also found that Perceived usefulness is directly affected by perceived ease of use. This finding also suggests the mediating effect of perceived usefulness between perceived ease of use and perceived e-government performance. An effortless e-government system leads to not only a higher perception of performance but also to a higher perception of usefulness. Perceived ease of use, therefore, affects perceived e-government performance both directly and indirectly through perceived usefulness.

Decision support from management has positive and significant influence on both perceived e-government performance (β = 0.323; P < 0.001), and perceived usefulness (β = 0.197; P < 0.001). H4 and H5 are satisfied. The fact that the emergence of e-government in Togo has improved planning and decision making, monitoring and control process in the public sector sends a strong signal to potential users of e-services. As such, the enhancement of decision support from management through e-government leads to citizens perceiving the

systems as performing and useful. Efficiency has no significant influence on perceived usefulness (β = 0.015; P>0.05), which means H6 is rejected. Citizen's perception of the efficiency of the e-government system does not necessarily translate to the system being useful. However, efficiency has a positive and significant influence on perceived ease of use (β = 0.225; P < 0.001), satisfying H7. This result also suggests an indirect effect of efficiency on perceived e-government performance through perceived ease of use. Transparency has a positive and significant influence on both perceived usefulness (β = 0.247; P < 0.001), and perceived ease of use (β = 0.376; P < 0.001). H8 and H9 are accepted. A transparent e-government system suggests not only the usefulness of the system but also its ease of use. Transparency may have an indirect effect on perceived e-government performance through perceived ease of use and perceived usefulness. Interactivity has a negative significant influence on perceived usefulness (β = -0.113; P < 0.05), and a positive significant influence on perceived ease of use (β = 0.313; P < 0.001). H10 is therefore rejected but H11 is accepted. A positive relationship was hypothesized between interactivity and perceived usefulness, and the results suggested otherwise. The positive influence of interactivity on perceived ease of use suggests an indirect influence of interactivity on perceived e-government performance through perceived ease of use.

Implication

Theoretical Implications

The ultimate goal of this study is to identify the Factors Influencing Perceived E-government Performance in Togo citizens' perspective to evaluate the Perceived E-government Performance. This study, placing the citizens at the core of the e-government performance assessment, revealed that the perceived usefulness has no significant influence on perceived e-government performance while on the contrary, Perceived ease of use, Decision support, Efficiency, Transparency, and Interactivity has a significant influence on perceived e-government performance. From Citizens Perspective and anticipate the improvement of strategies. While such factors have also been studied in different contexts, the proposed research model identified the mediating role of perceived usefulness and perceived ease of use in

Practical Implications

The findings of this research have practical implications for government and e-government users in designing and promoting e-government services in Togo. The main determinant Factors Influencing Perceived E-government Performance from Citizens Perspective have been identified. These findings are expected to help in the design and deployment of e-government services with a focus on the citizens' perception when evaluating e-government performance. Additionally, citizens' perception is imperative as their feedbacks influence their peers' decision in using the services. The high cost associated with e-government implementation in a developing country context where financial resources are limited, necessitates the citizens perception on the performance. The implications of the research findings could also be relevant to other developing countries.

Motivation

This study is motivated by the increasing global trend towards digital governance and the critical role e-government plays in improving public service delivery, transparency, and citizen engagement. In Togo, the adoption of e-government systems is still in its developing stages,

and understanding the factors that influence citizens' perceptions of its performance is essential for successful implementation. By identifying both direct and indirect factors, this research seeks to address a gap in the literature concerning how technological, organizational, and social elements contribute to e-government effectiveness from the citizen's point of view.

Contribution

The study contributes to the field by offering an in-depth analysis of the perceived performance of e-government services in a developing country context, specifically in Togo. It provides empirical evidence on the key factors such as technological infrastructure, user satisfaction, and government transparency that shape citizens' views. Moreover, the research distinguishes between direct and indirect influences on these perceptions, providing policymakers with actionable insights on how to optimize e-government initiatives. This contribution is vital for enhancing public trust, increasing adoption rates, and ultimately ensuring the long-term success of digital governance in Togo.

Limitation

Limitation of Study

Though the findings were useful, significant hurdles have limited the scope of this research. Firstly, the survey was conducted in the capital city so cautious is required on generalizing findings to the whole country. The performance of e-government services may be more challenging in rural areas where access to internet is limited. Secondly, demographics such as age, education, gender and work could have some significant influence on how e-government performance is perceived but they were not included in the research model. Thirdly, the different demographics of the population may not be fully represented by the sample.

Future Research

The above limitations provide an avenue for future researchers to carry out better assessment of e-government performance in terms of citizen perception. This research study presents a generalized model e-government performance from citizen perception. As such, this study could be replicated to specific e-government services like e-learning or e-health. Additionally, future studies should be directed towards expanding existing e-government performance models to include trustworthiness and satisfaction of the system. The scope of future research can cover, other cities in Togo, extension of the model by incorporating other relevant variables, replicate the study to specific e-government services such as e-tax, e-ID etc.

Conclusion and Implication

The ultimate goal of this study is to identify the flaws and shortcomings in e-government performance and anticipate the improvement of strategies. This paper proposes and validates a framework of the factors influencing e-government performance from citizen perception. Being the prime empirical investigation in the context of Togo, this study showed that; (1) Perceived ease of use, decision support, efficiency, transparency and interactivity directly or indirectly influence perceived e-government performance; (2) It elucidates how the concept of citizen can be used for evaluating the performance of e-government and finally; (3) this study revealed that the lack of awareness campaigns on the use of online public services might affect citizen’s perception of e-government performance.

The study identified the need for the local government to provide education and training to citizens on the prominent role that information and communication play in their businesses, develop an adequate ICT Training Plan for the benefit of citizens and to make ICTs accessible in terms of quality of service and cost.

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Appendix A Table 8: A summary of the indicator variables

Efficiency	
Eff1	The emergence of e-government has improved the delivery of public services
Eff2	The emergence of e-government has simplified the procedures in public administration
Eff3	The emergence of e-government has reduced paperwork in the public sector
Eff4	The emergence of e-government has reduced cost in assessing public services
Transparency	
Trans1	The delivery of information on government websites is reliable
Trans2	The delivery of information on government websites is comprehensive
Trans3	Information is easy to access government websites
Trans4	There is fairness in the delivery of information on government websites
Interactivity	
Inter1	The emergence of e-government has improved interaction between citizens and public authorities during covid 19 outbreak
Inter2	The emergence of e-government has improved the responsiveness of public authorities towards citizens during covid 19 outbreak
Inter3	The emergence of e-government has enhanced exchanges between citizens and public authorities during covid 19 outbreak
Decision Support	
DecSup1	The emergence of e-government has improved planning and decision making in the public sector during covid 19 outbreak
DecSup2	The emergence of e-government has improved the monitoring and control process in the public sector during covid 19 outbreak
DecSup3	The emergence of e-government have enhanced decision support from management during covid 19 outbreak
Perceived ease of use	
PEOU1	It is easy to learn how to use online public services
PEOU2	The use of online public services is clear and understandable
PEOU3	The use of online public services is flexible
PEOU4	It is easy to use online public services
Perceived usefulness	

PU2	Information online through e-government portal can be accessed quickly
PU3	Online public services can improve productivity and transactions
PU4	Online public services can enhance effectiveness in the public sector
Performance	
PERF1	Using e-government services can meet my expectations
PERF2	I am satisfied with online public services
PERF3	I find the performance of e-government services apparent