Assessing the Acceptance of e-Government in Local Service Delivery in Ghana: A Case of the Accra Metropolitan Assembly (AMA)

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Abstract
The commitment of political leaders to the usage of Information Communication Technology in enhancing public service delivery has been demonstrated through introduction of e-Marriage Application at the Accra Metropolitan Assembly (AMA). However, the success of this strategy partly depends on its acceptance by public servants at AMA, and its residents. The main aim of the study was to examine the key issues in the acceptance of e-Marriage Application at AMA through the spectacle of the Technology Acceptance Model (TAM). The research used primary data obtained through semi-structured interviews conducted with 15 clients and public servants purposively selected for the study. Primary data was triangulated with secondary data from books, articles from peer-reviewed journals, and other relevant academic documents. The study arrived at the conclusion that, apart from Perceived Usefulness (PU) and Perceived Ease of Use (PEU): User Characteristics, Trust, Culture, Political Leadership and Awareness were the key determinants in the acceptance of e-Marriage Application at AMA.

Key Words: e-Government, Acceptance, TAM, PEU, PU

Introduction
The evolution of technology and the emergence of e-government strategies have been phenomenal(Kumar & Misra, 2007; Kumar, Misra & Mishra, 2013). Gradually, e-government is becoming a fundamental reform tool for enhancing public administration especially in developing countries like Ghana where public organisations face resource constraints in the delivery of public services (Dombeu, Vincent & Nelson, 2014; Awortwi & Owusu, 2014; Awortwi&Amega-Serlom, 2016). The adoption of e-government strategies by districts assemblies in Ghana has the potential of enhancing the administration of such institutions, as well as improving public service provision and delivery. e-Government undoubtedly has the potential to reduce administrative and development problems (Schuppan,2009; Denhardt & Denhardt, 2009; Awortwi&Amega-Serlom, 2016).

The Ghanaian government’s initiative to be indulgent with the concept of e-government in the public sector has translated from speculations to reality, as the government has embraced
and accepted it as a formal policy (Awortwi & Owusu, 2014; Awortwi & Amega-Serlom, 2016) There was an initiation of the e-Ghana Project in 2008, which sought to introduce viable I.T strategies in public sector to improve public services delivery. As part of the e-Ghana project1, some public agencies were specially captured (as a pilot measure), to use various ICTs and other e-government solutions to achieve greater efficiency, transparency and accountability. Such agencies include; Ghana Immigration Service (GIS), The Ghana Revenue Authority (GRA), Registrar General’s Department, Accra Metropolitan Assembly (AMA), Birth and Death Registry, Driver and Vehicle Licensing Authority (DVLA), Ghana Police Service, Ghana Tourism Authority, Minerals Commissions, Ministry of Foreign Affairs, The Parliament, and the Judicial Service of Ghana which where tasked to ensure greater use of ICTs to enhance their public service delivery (Awortwi & Owusu, 2014).

However, in a literature search on e-government on major online databases, very few works were found considered issues on the implementation of specific e-government strategies in MMDAs in Ghana. Available studies on e-government have mostly explored the phenomenon against the Ghanaian public sector as an entity (Awortwi & Owusu, 2014; Mensah, 2016; Awortwi & Amega-Serlom, 2016). Others works have also focused on other institutions, some of which are amongst the institution selected to experiment the use of e-government strategies through e-Ghana project. Such institutions include GRA, DVLA, RGD and GIS (Mathapoly-Codjoe, 2015; Nsiah, 2014; Agyemang, 2015; Amegavi, 2015). Some of these works focused on important aspects of e-government, like funding of e-government projects in Ghana (Agyemang, 2015). Others like Mathapoly-Codjoe (2015) also assessed the role of perception of staff and citizen end users of e-government services, and its bearing on the success or otherwise of e-government.

The role perception of staff and citizen’s acceptance on the sustainability of e-government strategies cannot be overemphasized (Al-Awadhi & Morris 2008; Jiang & Ji, 2014). TAM is regarded as an instrumental model in explaining the adoption of innovations. TAM has mostly been adopted in investigating the adoption of ICTs, as well as identifying variables that affect acceptance of technologies (Chen, Gillenson, & Sherrell, 2002; Jiang & Ji, 2014). In spite of the extensive adoption of Technology Acceptance Model (TAM) in Informational Studies research (AlAwadhi & Morris 2008; Al-Shafi & Weerakkody, 2009), scholars have neglected the model in their explanation of adoption of e-government in Ghana. However, there are some studies that have used the model in explaining adoption of innovations like in Internet Banking (Mbrokoh, 2015) and Electronic Cheque Clearing System (Asmah, 2015) all in the Ghanaian context. These studies have heavily relied on quantitative approaches and Equation Modelling data analysis technique. In fact, few studies have attempted to use qualitative approaches in investigation the adoption and use of innovations with TAM (Vogelsang & Steinhüser, 2013; Venkatesh, Brown & Bala, 2013). However, researchers like Charnkit (2010) successfully applied TAM in qualitative study to assess the adoption of knowledge conversion in Thai public organisations. Van Biljon and Renaud (2008) also quantitatively investigated the adoption of mobile phones by the elderly using TAM. There have been calls for the use of qualitative research designs with the TAM (Van Biljon & Renaud, 2008; Charnkit, 2010; Vogelsang & Steinhüser, 2013; Venkatesh et al, 2013). The formulation of TAM is credited to Fred Davis (Davis, 1989). This model is also

1Read more about the e-Ghana project at http://www.nita.gov.gh/eGhana-Project
based on Theory of Reasoned Action (TRA), and has been used to explain individual's acceptance behavior. With substantial influence from the TRA, the TAM was first proposed by Davis in his Doctoral thesis (Surendran, 2012). The main argument of TAM is that, individuals use technologies, due to their voluntariness to use such innovations. The model proposes that two factors; Perceived Usefulness (PU) and Perceived Ease of Use (PEU), of innovations were the determinants of the degree of voluntariness to use innovations. PEU is explained as “the degree to which a person believes that using a particular system would be free of physical and mental effort” (Davis, 1989, p.335) whereas, PU of the system refers to “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p. 335).

The model also posits that, the two factors (PU and PEU) may be influenced by external variables (Social and Political Factors). Social factors consist of language, skills and facilitating conditions. Political factors include for instance, the impact of using technology in politics and political crisis. They further advance the claim that, the attitude to use is concerned with the user's evaluation of the desirability of employing a particular information system application. Behavioral intention is the measure of the likelihood of a person employing the application (Surendran, 2012).

Apart from the consolidation of TAM is a classic theory for investigating adoption of innovations (Pikkarainen, Pikkarainen, Karjaluoto&Pahnila, 2004; Zhou et al, 2007; Muller-Seitz, 2009). There has been a call for the use of “non-deterministic theories” by researchers to help identify contextual factors that shape the acceptance and use of innovations (Nuhu, 2015). Amongst the available frameworks available for the research TAM guarantees more flexibility by allowing the integration of other factors to create a new framework. This makes TAM a better framework for examine ICT adoption in diverse contexts, especially “non-traditional’ Information Systems Research domains like e-government (Pikkarainen et al, 2004; Zhou et al, 2007).

Indeed, AMA happens to be the only Metropolitan, Municipal or District Assembly (MMDA) captured on the e-Ghana project to pilot some e-government strategies in public service delivery. AMA now has a website and an e-services portal as a result of this policy. The focus of the study is therefore to investigate qualitatively, the acceptance of e-Marriage Application (e-Marriage Application), at the AMA, through the framework of the TAM. Specifically the study aimed at investigating the perceived benefits and conditions perceived to be hindering the easy use of the selected e-government strategies at the AMA. The study also strived to identify factors that were perceived to have impact on the acceptance of e-Marriage Application by staff and residents of AMA.

**Methodology**

AMA is among oldest, most populated and developed of all the MMDAs in Ghana. Accra Metropolitan Assembly doubles as the seat of administrative capital of Ghana. It is presumed this district has fairly adequate technological infrastructure for their operations, as compared to any other districts (Awortwi & Owusu, 2014; Awortwi & Amega-Serlom, 2016). AMA is also the only MMDA selected under the e-Ghana project to pilot some e-government strategies. Moreover, there is information of the adoption of the use of
e-government strategies in the Metropolis, which makes it the ultimate case for the study. The study was therefore targeted at Marriage Application as a proxy for assessing e-government acceptance at AMA.

The study adopted the use of both primary and secondary sources. With the aid of structured one-on-one and phone-in interviews, this study acquired primary data from staff and residents of AMA, as well as the Head of Applications Systems at the National Information Technology Agency (NITA) on the area of study. Moreover, there was the use of data secondary sources such as books, government policy publications, articles in peer reviewed journals, thesis, relevant e-government and public sector documents, together with other Internet sources.

Purposive sampling technique was used to select staff of AMA and NITA who possessed and were capable of revealing the needed information critical to attaining the goals of the study. Convenient sampling technique was also adopted to include clients who were available at the premises of the AMA, and willing to contribute to the research.

The study therefore engaged a sample of fifteen (15) respondents in total. Of the (15) participants sampled to be interviewed on the topic of e-marriage application, six (6) were staff of the study institutions whereas nine (9) were clients of the marriage registry of the AMA. The Application Systems Director at NITA, Management and Information Systems (MIS) Head at AMA, Deputy MIS Head and The Registrar of Marriages were regarded as Key Informants for the study. On the average interviews lasted a period of thirty (30) minutes. Where necessary, interviewees were contacted to clarify any unclear information given through telephone calls. All interviews were recorded after permission was sought from respondents, and transcribed afterwards. Data collected by the study was presented and analysed using a thematic codes that based on the objectives of the study. The primary data was then discussed alongside discussions and issues realised in the process of the research through secondary data sources. There was therefore a triangulation of primary data and information acquired through secondary sources. Triangulation helped the researcher to make inferences by objectively and analytically recognising definite features of messages and responses.

**Presentation of Findings**

Previously all application for marriage in Accra could only be done by walking to the AMA, picking up a form and paying for the service. Since 2012, the AMA in conjunction with NITA had adopted the use of ICT tools (website and e-payment systems) to assist in the application of marriages internally as a pilot measure to enhance marriage related records keeping by the Assembly. In December 2014, NITA in conjunction with AMA made the step to allow the general public to apply for this service online through the eservices portal of the government of Ghana. From the perspective of Heeks (2001) this mode of e-government application can be termed as e-service. This is true because this strategy was employed to improve the relationship between the AMA and its constituents, by increasing the information flow between them. At the moment use of the ICT is limited to the application for Ordinance Marriage license. The Deputy MIS Head at the AMA confirmed this information saying,
I mean with NITA, It was launched in December 2014 and actually AMA put one of our services on the platform and that is marriage so it all began in December 2014. The e-forms, electronically filled ones and the payment and services. NITA started piloting the e-government system in 2008 but the launching was done in 2014. And with the piloting we were not dealing with the public but with the launch in December 2014 we started dealing with the public and the transactions has being going on, people have been applying online, making payment online for their services without necessarily walking or coming all the way to the assembly.

The aim of the study was to explain the factors that influence the acceptance of the selected e-Marriage Application at AMA. In spite of the extensive use of TAM in explaining acceptance of innovations, it has also been associated with its inability to capture specific external factors (Social and Political factors) that influence acceptance (Nuhu, 2015). Researches that adopt TAM mostly develop customized versions of TAM based on study findings (Zhou et al, 2007; Muller-Seitz et al, 2007). Generally, all respondents agreed that PU and PEU of e-Marriage Applications were critical determinants in acceptance of this strategy at the AMA. However, based on the answers received during interview sessions with respondents on the usage of e-forms for marriage license application at the AMA, other factors (Social and Political Factors) emerged. This section of the study is dedicated to presenting the responses based on themes created after the researcher listened to voice recordings repeatedly and transcription.

**PU and PEU as Factors for e-Marriage Acceptance**

The study confirmed the assertion of the Davis (1989) that PU and PEU were determinants the acceptance of innovations. All respondents believed that PEU and PU were critical factors in acceptance. In relation to the perceived benefits associated with use of the e-Marriage Application, confirmed that e-government, limited corrupt practices, enhanced efficiency in work duties, promoted transparency and accountability. It was also revealed that, it promoted easy participation of citizens on issues of governance. On the identification of the usefulness or benefits derived from the use of this e-government strategy, the study confirmed findings of similar studies undertaken by other researchers. In the case of limitation of corruption, it confirmed previous studies by Bertot et al (2010), Cho and Choi (2011), Sigh et al (2010) and Tsamenyi et al (2009). The assertion by Bagga et al (2005) and Bertort et al (2010) that, e-government strategies ensures transparency and accountability was also validated. Also the study confirmed the findings of Prasad (2012) who insisted that e-government had the potential of making governance activities closers to citizens to facilitate their easy participation.

On the Count of PEU, it was established that low awareness of e-government strategies, high cost of running, infrastructural limitations and challenges with the availability of electricity were issues that the selected e-government strategies were saddled with. These challenges discovered were also very similar to challenges discovered by other e-government researchers (Misuraca, 2007; Awortwi and Amega-Serlom, 2015; Agyemang 2015; Mathapoly-Cudjoe, 2015). Respondents believed that these challenges could be disincentives to individuals in their acceptance of innovations likee-Marriage Application.
User Characteristics

Cole and Kelsey (2004), Al-Shafi and Weerakkody (2009) and Charnkit (2010) link user characteristics to acceptance of e-government strategies. Similarly a key factor established by the study to influence a client's likeability of the e-service platform was the characteristics of clients. Some respondents agreed that older people were not very well vesting with Internet applications. The researcher also confirmed this observation, as all of the users of the e-service platform engaged for the study were aged 25 to 34.

Similarly others also agreed that people who had no formal education might not have the capacity to use such applications because their knowledge is limited in that regard. There were also concerns that, there might even be literates who are not computer literates who might not be able to use the e-marriage application platform and this may influence their perception on such strategies. The study confirmed that, the capacity of individuals had an impact on their acceptance of such e-government strategies. On this topic, the PRO of the AMA said,

*We have the majority of our people too who are not so much literates, and normally that is another challenge, because it is just a few people who are into using these online applications in view of this obstacle or challenges, they then need to rely on the traditional way of doing it.*

Another respondent who was a client responded,

*You know, you do not expect someone who has not gone to school before to read information on the website let alone, to type responses. Even those of us who are literates sometimes have challenges with these computers and smartphones, so I think the educational level or the level of knowledge on IT tools is a factor that will determine whether a client will do the online registration (Field Interview, 2017).*

An interview confirming the assertion that features like education and age can affect user acceptance of e-government strategies was done with a respondent who was 46 year old female client at the AMA, commenting on her perception of the adoption of e-forms by the AMA, she responded

*I have not even heard that we can use computer to apply. For me I did not go to school, so how do they expect me to use computer? Even with my phone my kids at home are the one teaching me to use it, I do not think the e-marriage application is meant for people like us (Field Interview, 2017).*

Trust

The some respondents also cited the level trust of clients in the AMA, to process online applications, as a deciding factor of the choice of the client. Issues of trust were also mentioned as determinants of citizen's acceptance of e-government strategies (Asmah, 2015; Mahmoodi &Nojedeh, 2016; Kurfali et al, 2017). All respondents interviewed believed that, the majority of client base of AMA trusted the manual or face-to-face application to online application. Some respondents were IT literates, and also aware of the online
marriage registration, but did not proceed with the online platform. This was because they
did not trust the AMA to work on their application if they do not go there face to face. A
respondent interview said,

Well a friend told me about the online one (referring to online marriage
registration), but this is Ghana. Who will I consult after 21 days if my certificate
is not ready? (Field Interview, 2017).

The Computer Programmer of MIS Department also added his voice in this regard saying,

The public are looking for security, in terms of whether their application is secured,
that they could easily get their license, you know, most of the public are thinking
when they go online and do the application, they don’t know the next stage of it.
But when they come in here, they feel like it will be done.

The Director of Application Systems at NITA also added her voice in this regard saying,

Some of them have, issues of understanding the virtual institutional setup, because
if you are doing this it means you are hoping that once you submit the institution
will still communicate. But however, we find out that the community that reside
abroad, they do it a lot more because they are familiar with e-government and
therefore they do it more, and therefore the more they do it, the more it creates
the avenue for local people to believe that if the person who is so many miles away
is able to get a service from Ghana, then a local should be able to do same.

Culture

Jho (2005), as well as the Charnkit (2010) all established the outlook of innovation users
(whether staff or citizens) had an influence on their acceptance of e-government strategies.
Similarly, that organizational culture as well as the outlook of citizens of e-marriage
application had an influence on their acceptance of the strategy. There were responses,
which suggested that some staff dislike the e-application systems because it was preventing
them from perpetuation corrupt practices. Some staff wanted to meet applicants so they
could extort money from them illegally. In this regard the culture of corruption in the
organization, had a negative influence on staffs acceptance of the e-government strategy,
even in spite of the numerous benefits perceived to be associated with it. A staff of the
AMA said during an interview,

Then I think another issue is the staff, because people are a little shy from ICT,
some feel the manual is the best way and because of small money that also comes
out of it in the manual.

Another staff also confirmed this belief saying,

Even now, they still want to stick to the manual they want to meet the customers’
one on one and you know what I am talking about (referring to that fact that it
supports the perpetuation of corrupt practices).

Moreover, it was also gathered from respondents that, most Ghanaians are not used to
doing business virtually, and feel that serious business must not be done virtually. All of
the respondents interviewed agreed that, residents of the AMA stick to the manual or the
face-to-face mode of application because they are used to it. One such respondents was the Applications Director of NITA, who said,

People have done these face to face interaction for a long time so the virtual organization beats their mind, they cannot believe that it is real, that you could actually request for a service and sit at home and believe that somebody will actually process after you have paid and all of that. Some of them have, issues of understanding the virtual institutional setup, because if you are doing this it means you are hoping that once you submit the institution will still communicate.

The Role of Political Leadership

Most respondents believed that top management of the Assembly played a significant role in the acceptance of e-government. Some of the respondents cited the fact that, management is required to take decisions with regards to the provision of infrastructure needed for the strategy be effective. There were issues raised on the role of management as a highest decision making body, to institute policies which may support or undermine the implementation of such initiatives. The management, which consists of General Assembly, Metropolitan Chief Executive and the Coordinating Director, as well as the departmental heads, played a critical role in the acceptance of e-government strategies. For instance the Director of Application Systems of NITA suggested the suspension of manual application of marriage by management of the AMA, to force clients to use the e-service platform, she said,

I see that Top Management should be using some of policies, like I said incentives to push more of the customers to the online platform if we want to go e-government, because if you don't do that and you constantly leave the manual the digital processing then it becomes a problem for the organization, it becomes a burden for the AMA because now their processing channels are two, they have to process manual request as well as digital requests… institutions like Passport Office have been able to insist that all passport applications must be done online, at least once you are requesting from Accra it should be done online and I think it is worth emulating. I think that is the only option to encourage people to adopt e-government tools. So there are ways, the institution must take a bold decision after comparing and seeing that there is a lot of benefits in the e-government platforms. So they must go further to introduce policies.

Commenting on the role of political leadership in the acceptance of e-government applications, the Head of MIS also express concerns about the need of management to motivate clients to apply for marriage registration online, by abolishing the manual application process, she said,

I believe management need to be on top of the staff to make sure that they are using these services. And I can also say we have not done the change management well, so people who use the e-service are not so much, when you give people two the alternative way of working that's what happens. If I say I am doing online services, that service is supposed to be solely online, then you don't have need
to have any alternative, so people will have no option than to use it. But where you give the person alternatives, and people feel more comfortable with the alternative more than what you actually want, that brings up new challenges (Field Interview, 2017).

This finding of the study was a confirmation to previous works done on e-government in other national and organizational contexts. The critical role of political leadership in the acceptance of e-government has also been affirmed by scholars (Ruth and Schware, 2008: Ngulube, 2007: Ebrahim and Irani, 2005: Sanchez et al, 2003: Chau and Hu, 2002).

**Citizens/Public Servants Awareness of e-Government strategies**

West (2004) was emphatic on the stance that, the level of awareness of citizens and public servants, of the usage of e-government application was critical to their eventual acceptance and usage of such applications. Interviews conducted on the external factors affecting the acceptance of the e-government strategies also revealed that, most respondents regarded public knowledge or awareness of e-government strategies as a drive for acceptance. They believed that people would be willing to use the e-marriage platform if it is widely publicize to the general public through the various channels of media. In relation to this assertion the a Computer Programmer at the AMA said,

> Then I also think that the public are not too aware of the e-government system that is available. The lack of awareness of the general public prevents them from using it.

The Assistant Head of MIS also expressed similar concerns saying,

> People can only use the service when they hear about it. We have actually told NITA to help us with this publicity because it shouldn’t only lie on the Assembly alone, they should also make the noise there because it is a government service, so prime time on televisions, actually we have done two but personally it is not enough (Field Interview, 2017).

Most respondents who had used the e-application portal confirmed that, they knew other individuals who had use the service before. This finding supported the assumption of the Diffusion Theorists (Rogers, 1995). Diffusion theorists view observability (the extent to which the results of an innovation are transparent as compared to others) as a drive for innovation acceptance. They believed that clients would accept e-services like e-marriage application, if it were widely publicized to the general public. The Application Systems Director of NITA shared this sentiment as she said,

> But however, we find out that the community that reside abroad, they do it a lot more, because they are familiar with e-government and therefore they do it more, and therefore the more they do it, the more it creates the avenue for local people to believe that if the person who is so many miles away is able to get a service from Ghana, then a local should be able to do same (Key Informant, 2017).
Summary of Findings and Recommendations

The study also had the objective of investigating factors, which influence the acceptance of e-government strategies by staff and citizens at AMA. It was established that, apart from PU and PEU; User Characteristics, Trust, Culture, Political Leadership and Awareness were as key determinants in the acceptance of e-Marriage Application at AMA. This finding supported results of similar studies. User characteristics were found to be a factor influencing the acceptance of innovations in the public sector institutions by Charnkit (2010), Cole and Kelsey (2004) and Al-Shafi and Weerakkody (2009). Asmah (2015) also established trust as key factor in the acceptance of Electronic Cheque Clearance System in Ghana. Other scholars also affirmed trust as an influential phenomenon in e-government acceptance (Mahmoodi and Nojedeh, 2016: Kurfali et al, 2017). Ruth and Schware (2008), Ngulube (2007), Ebrahimand Irani (2005), Sanchez et al (2003), as well as Chau and Hu (2002) also proved that political leadership was key variable in acceptance of e-government. Weekkody (2009) was also supported the assertion that outlook or culture of citizens and staff had strong links with the acceptance of e-government strategies.

The research was advanced on the claim that, e-government strategies have the potential of transforming local authorities in Ghana. However, findings prove that the implementation of e-government strategies in arguable one of the most resourceful MMDAs in Ghana is plagued with some shortfalls, and multidimensional factors that affect acceptance of similar strategies. In view of these findings, some recommendations have been outlined to promote e-government acceptance in MMDAs in Ghana.

- The government of Ghana must dedicate funds for e-government in Local Authorities, since e-government strategies are associated with huge administrative costs.
- There must be intensive campaigns of e-services platforms through the various channels of the media. Citizens must be educated on the use of eservices platforms in the country to create the atmosphere for acceptance of such strategies.
- Government Agencies must encourage the use of Social Media to enhance communication among staff, in places where there lack of funds to implemented sophisticated technologies like POS devices etc. MMDAs like AMA must encourage use social media platforms like Facebook, WhatsApp, and Twitter as cheaper avenues to attain feedback from clients of their services.

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