Revisiting the Theory of Planned Behavior for the Preparation of the Adoption of Municipal e-Services in Less Developed Countries

Ntjatji Gosebo
Durban University of Technology
P.O. Box 1334, Durban
4001, South Africa
+27 31 373 5692
ntjatji.gosebo@gmail.com

Seraphin Desire Eyono Obono
Durban University of Technology
P.O. Box 1334, Durban
4001, South Africa
+27 31 373 5692
EyonoObonoSD@dut.ac.za
EyonoObonoSD@yahoo.com

ABSTRACT
The aim of this study is to design a model of the factors affecting the decision of municipal councils of less developed countries (LDCs) to commit resources in preparation of the adoption of e-services. The proposed model was designed by identifying key general e-government adoption factors using a systematic literature review, by modeling these factors according to the Theory of Planned Behavior (TPB), and by defining a set of hypotheses for the application of the proposed model to municipal e-services in LDCs. This led to the hypothesis according to which the decision of LDCs' municipal councils to commit human resources and to engineer institutional arrangements in preparation of the adoption of e-services depends on: a) The ICT infrastructural capabilities of their municipalities. b) How these municipal councils intend to use e-government as a strategic tool towards the fulfillment of their mandate of improving the socio-politico and economic conditions of their municipal citizens. c) Their belief that they are being put under pressure to institute e-government as the tool of excellence or norm for the running of municipal affairs. Such pressure may come from their interaction with their citizens, from national and global challenges beyond their control, or from constraints inherent to their political ideology. The proposed model can be used for the engineering of decision support systems to help municipal councils make investment decisions in preparation of the adoption of e-government especially in the context of LDCs. Futhermore, its originality lies on its focus on factors affecting the preparatory stage of e-services adoption.

Categories and Subject Descriptors
H.1.1 [**Systems and Information Theory**]: Value of Information.

General Terms
Management, Design

Keywords
E-service, adoption factors, municipal services, less developed countries.

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1. INTRODUCTION
Most aspects of a person's life generate information usually used by government services for the management of public affairs (Heeks, 1999). This is made possible through the design, deployment, and maintenance of reliable, high-quality, and up-to-date public information systems (Kamal, 2006). This may explain why information technology (IT) is a growing segment of governmental budgets worldwide (Hassan *et al.*, 2011), clearly with the intended purpose of generating value (Melville et *al.*, 2004). In other words, adoption of information technology gives a competitive advantage to adopting organizations and countries at the expense of non-adopters (James, 2001); especially in a context where the economy is shifting from the production of goods to the delivery of services (Hassan *et al.*, 2011). This leads to the definition of e-government as the use of information technology in the conduct of public affairs (Rokhman, 2011), so that citizens can access public officials and government services via information technologies such as Internet (Kabir and Baniamin, 2011).

There are four main types of functions attributed to e-government: e-organization, e-services, e-democracy, and e-politician (Carrizales, 2008; Serrano-Cinca *et al.*, 2009; Kabir and Baniamin, 2011; Weerakkody *et al.*, 2011). Even though this paper focuses on e-services, it seems important to first give a brief overview of the aforementioned four facets of e-government. E-organization is mainly concerned with the use of information technology by governments for the optimization of their internal efficiency and effectiveness. E-services are defined as the use of information technology in the efficient and effective provision of public services to citizens. E-democracy consists in the use of information technology to ensure that citizens' voices are heard in public decision-making processes such as elections, petitions, etc. And e-politician simply refers to the use of IT by politicians in their political duties.

It is also worth noting that there are four sequential stages in the adoption of e-government (Heeks, 2006), irrespective of the e-government facet considered: readiness, availability, update, and impact. These adoption stages are presented by Figure 1.

In the Heeks model represented by Figure 1, the e-government readiness stage refers to the state in which policy makers become aware of the benefits of e-government, and recognize the need to develop the required infrastructure for its enablement and for the reduction of the digital divide. The e-government availability stage deals with the actual deployment of e-government services that are therefore made available to

users. The uptake stage refers to the consumption or adoption of e-government services by their intended users. During the impact stage, the effectiveness and efficiency of e-government services are evaluated in terms of their added value for users.

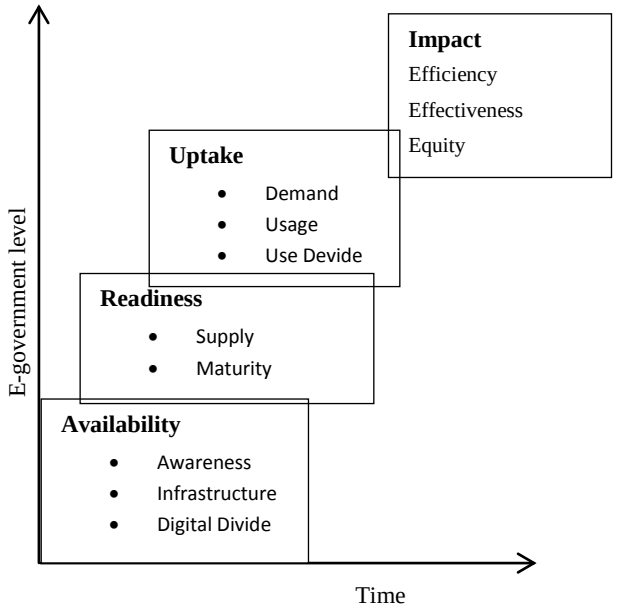

Figure 1. E-government adoption 4 stages (Heeks, 2006)

Interestingly, Kabir and Baniamin (2011) also propose a sequential e-government adoption model made up of three phases, also irrespective of the e-government facet considered: availability, accessibility, and usage. These adoption stages are presented by Figure 2.

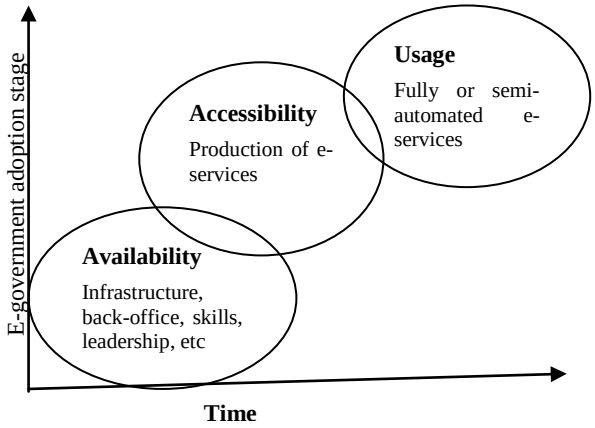

Figure 2. E-government adoption three stages (adapted from Kabir and Baniamin, 2011)

In the model proposed by Kabir and Baniamin (2011) (See Figure 2), the availability stage refers to the state where policy makers provide the necessary leadership, resources, and skills to build and sustain e-government. The e-government accessibility stage deals with the production of e-government services by relevant governmental departments and agencies. The usage stage refers to the consumption or adoption of e-government services by citizens either in the form of semi-automated e-government services through the intermediation of third persons as it is the case of call-centers and walk-ins, or in the form of fully automated e-government services.

A close examination of Figure 1 and of Figure 2 reveals interesting similarities and differences between the model proposed by Heeks (2006) and the one proposed by Kabir and Baniamin (2011). More importantly, such an examination leads to the merger of the above described models into a combined model (See Figure 3).

One remarkable aspect of the digital divide is that developed countries are currently in the consumption stage of the adoption of e-government; but LDC's are really still in the preparatory stage of the adoption of e-government. This therefore triggers the following question central to this research: Are LDCs succeeding in the supply of infrastructure and resources for the deployment of e-government? And what are the factors affecting such a success?

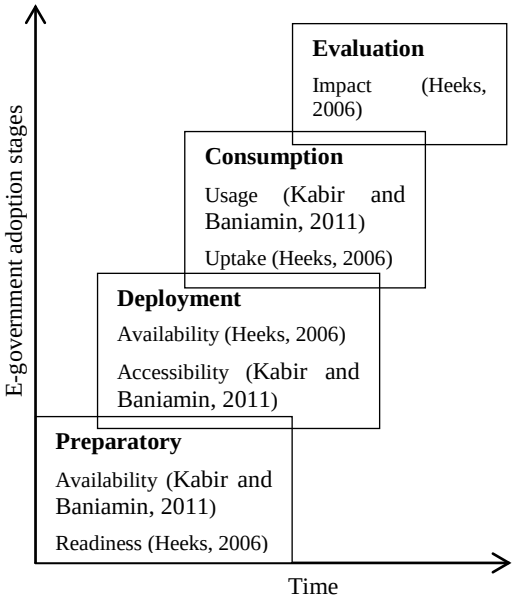

Figure 3. Merging e-government adoption stages

2. PROBLEM STATEMENT

Various United Nations (UN) e-government rankings of countries consistently depict LDCs as being seriously challenged with regard to e-government adoption (Imran and Gregor, 2007). The same applies to Internet connections still not distributed evenly across racial, regional and socio-economic lines (Carter and Weerakkody, 2008). In fact, Ebrahim and Irani (2005) report that Information Technology (IT) costs are high in LDCs in order for these countries to benefit from the services of IT professionals and consultancies for the installation, the operation and the maintenance of IT systems such as e-government. In general, existing literature on e-government highlights the failures of e-government in LDCs compared to their developed counterparts as shown by the following extracts mainly citing Heeks (1999) or the United Nations (UN) e-government rankings reports.

> "An eGovernment benchmark study conducted by the American Society for Public Administration (UNPA & ASPA, 2001) aimed to categorize the progress made by developed and developing countries in developing an online presence on a five stages scale: Emerging stage; Enhanced stage; Interactive stage; Transactional stage and Seamless stage, revealed that nearly all 32 countries at the Emerging Presence level were among the world's least developed nations, characterized by static and insufficient

information that is infrequently updated, few interactive features, and non-existent online services" (Ndou, 2004).

"In a recent survey regarding the success and failure rates of eGovernment in developing and transitional countries, Heeks found that more than one-third of initiatives are total failures (e.g. the failure of decision support systems in East Africa); further, half can be considered to be partial failures (e.g. the partial failure of management information systems in Eastern Europe); and roughly one seventh are successes" (Heeks, 2003) cited by (Ndou, 2004).

"The UN global e-government readiness report gives data for all the 191 member states. The top countries and their indexes were the United States (.9062) Denmark (.9058) and Sweden (.8983). The average index across all regions of 191 countries was (.4267.) Widespread disparity among countries and regions was observed. The regions of Africa (.2642) and South and Central Asia (.3448) were far behind the rest of the world in almost all aspects of ICT development for e-government access" (Imran and Gregor, 2007)[1]

"… a significantly large number of South Africans lack the means, skills, and ability to access and make beneficial use of the services provided in the different stages of the maturity model (except for the most rudimentary services supported by the very early stages). Migrating the masses to the more highly-evolved stages of the model calls for policy-driven intervention schemes to be implemented by the government" (Maumbe *et al.*, 2008)

3. RESEARCH AIM

The aim of this study is to design a model of the factors affecting LDCs municipal councils' decision to commit resources dedicated to the successful implementation of the preparatory stage of the adoption of e-services (First stage of Figure 3). In other words, this study seeks to answer the following main research question: what are the broad categories that can classify the reasons why a municipal council of a LDC will opt to commit or not to commit dedicated resources towards the successful implementation of the preparatory stage of the adoption of e-services in its circumscription?

The choice of the LDCs context is justified by the fact that existing literature on e-services mainly focuses on the U.S. and Europe (Rorissa and Demissie, 2010), and studies that focus on the adoption of e-services in LDCs are insignificant when compared to the ones on developed countries (Baliamoune-Lutz, 2003; Basu, 2004; Maumbe *et al.*, 2008).

On the other hand, the choice of municipal councils as the scope of this research as opposed to national government is justified by the fact that, both in less developed countries and in developed countries, a sizeable proportion of government basic services are delivered at the municipal level.

The restriction of the scope of this research to the preparatory stage of the adoption cycle is also clearly justified by the fact that most LDCs have not yet managed to move beyond that stage as stated in the above section of this paper.

[1] This study was not able to confirm if the UN global e-readiness reports are annual or not, but it was found that such reports were released in 2001, 2003, 2004, 2005, 2006, 2008, and 2010.

Finally, the focus of this study on e-services rather than on other forms of e-government such as e-democracy, e-organization, and e-politician, is mainly due to the fact that other forms of e-government only exist because of the need to produce appropriate e-services.

4. THEORY OF PLANNED BEHAVIOUR

Practice and research efforts are moving beyond simply seeing technology as a crucial determinant for organizational success and are seeking a broader and more sophisticated understanding of the interaction between technology, organizations, and environments (Gil-Garcı´a and Pardo, 2005). This is in line with Hassan *et al.* (2011)'s conception of e-services as a mixture of business or management, governance, computer science, information systems, public administration, and political science. It is therefore not surprising for this paper to be guided by the Theory of Planned Behavior (Ajzen, 1991) which seeks to explain what triggers individual, collective, and organizational behavior in a broader social context. In that regard, this paper will use the Theory of Planned Behavior (TPB) to explain what triggers the behavior of a municipal council in a less developed country when deciding to commit or not to commit resources towards the preparatory stage of the adoption of e-services in its circumscription.

The TPB establishes relationships or correlations between the following factors in the process of adopting a behavior (Figure 4): behavioral beliefs, normative beliefs, perceived control beliefs, intention, and behavior (Ajzen, 1991).

According to the Theory of Planned Behavior, behavior refers to the actions or reactions of an individual in response to external or internal stimuli. Intention captures the motivational factors that influence a behavior; they are indications of how much effort people are planning to exert in their willingness to perform a behavior (Ajzen, 1991).

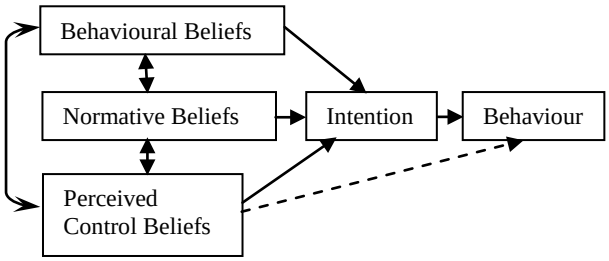

Figure 4. TPB Model (Ajzen, 1991)

There are three belief constructs in the Theory of Planned Behavior: behavioral beliefs, normative beliefs, and perceived control beliefs. Perceived control beliefs refer to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles. Normative beliefs (also called subjective norms) refer to the perceived social pressure to perform or not to perform the behavior. Behavioral beliefs (also known as the attitude towards the behavior) refer to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question.

5. LITERATURE OVERVIEW

The purpose of this section is to give an overview of existing literature on the preparatory phase of the adoption of e-services, with the ultimate aim of finding out what are the factors identified by such literature as having an effect on the decision of a municipal council of a LDC to commit or not to commit resources towards the successful implementation of the preparatory stage (Figure 3) of the adoption of e-services in its circumscription.

Even though it can be claimed that the factors mentioned in the last sentence of the previous paragraph are non-existent in existing literature, it is still important to note that various studies (Kabir and Baniamin; 2011; Kamal, 2006; Aguila-Obra and Padilla-Mele´ndez, 2006; Heeks, 2006) have been dedicated to the preparatory stage (Figure 3) of the adoption of e-services.

According to Heeks (2006), the preparatory stage of the adoption of e-services consists of the readiness and availability states. During the readiness state, policy makers become aware of the benefits of e-government, and they recognize the need to develop the required infrastructure for its enablement and for the reduction of the digital divide. E-government services are then made available to users during the availability state once they have been deployed.

On the other hand, Kamal (2006) uses the term "pre-adoption stages" to refer to the stages leading the decision of adopting e-government. This is in line with the definition of the e-services adoption preparatory stage by Aguila-Obra and Padilla-Mele´ndez (2006) as an active or passive search for opportunities; negotiations for backing IT implementation; and applying the IT and revising organizational procedures, in preparation of the deployment of e-services.

Finally, Kabir and Baniamin (2011) describe the preparatory e-service adoption stage to consist of availability and accessibility; where the availability stage refers to the state where policy makers provide the necessary leadership, resources, and skills to build and sustain e-government; and the accessibility stage deals with the production of e-government services.

6. RESEARCH DESIGN

The above presented literature overview on existing literature on the preparatory stage towards the adoption of e-services shows that such literature is currently limited to the description of that preparatory stage without identifying e-government adoption factors specific to it. In order to reach the main aim of this paper to design a model of the factors affecting LDCs municipal councils' decision to commit resources dedicated to the successful implementation of the preparatory stage of the adoption of e-services, the approach adopted by this paper is to design a model of general e-services adoption factors as evidenced by existing literature, and to later on apply these factors to the context of LDCs' municipal councils. The main hypothesis behind this approach is that general e-services' adoption factors are also applicable to the preparatory stage of the adoption of e-services by municipal councils in LDCs.

For the purpose of this paper, general e-services adoption factors were considered as evidence from existing literature as long as they constituted the results of research contribution based upon primary or secondary material – be that qualitative or quantitative. Any study setting out views or opinions that could not be substantiated by relevant data was excluded in the review. It is also very important to note that the research approach adopted by this paper was borrowed from a systematic literature review approach proposed by Croucher *et al.* (2003) whereby the following steps are proposed: formulation of the main review question, definition of the review selection criteria, and definition of the quality criteria for the review selection.

6.1 Review Question

The systematic literature review undertaken by this study was guided by the central question of finding out what factors affect the adoption of e-services in general.

6.2 Study Selection Criteria

Table 1 **(**Croucher ***et al,*** 2003) defines the set of pre-determined quality criteria against which literature studies were critically appraised to ensure that their findings were sufficiently robust to be included into this systematic literature review.

Table 1 - Selection Criteria (Croucher *et al*, 2003)

	Inclusion Criterion	**Exclusion Criterion**
Scope	Studies that relate to any combination from IT in government and factors influencing its adoption, which included one or more of the following aspects: LDCs, municipal services, and adoption model	Studies not relating to IT in government and lacking inclusion combinations, and with only one adoption factor already covered in selected studies.
Relevance to topic	Adoption factors for IT government service delivery in developing countries; Adoption factors for IT in municipal service delivery	All others studies that are irrelevant to the topic
Study Design	Studies must be refereed publications, whose findings are either based on a sound literature review, or on a full empirical research, or on both	In cases where there are multiple publications of data from a single study, the main findings only will be used to avoid duplication of results.
Quality appraisal	Included studies must meet all five essential elements of the quality appraisal criteria (Table 2 below) to secure internal validity of the study and trustworthy findings.	Studies that do not meet the essential elements of the quality appraisal criteria may not have trustworthy findings.

These criteria effectively mark the boundaries of the review, and help focus the development of the search strategy, as well as ensuring consistency of the review.

6.3 Quality Selection Appraisal

The set of quality appraisal criteria for the systematic literature review undertaken by this study is presented by Table 2

(Croucher ***et al,*** 2003). These quality appraisal criteria were applied to each study that met the initial selection inclusion criteria. As noted by Croucher et al. (2003), criteria marked as essential on Table 2 are those with the potential to alter the findings of the research, and the reviewers had to be confident that studies going forward to the review had addressed these criteria satisfactorily. Criteria marked as desirable on Table 2 aid in the interpretation of the review results and they may help explain variance in findings.

Table 2 - Quality Appraisal Criteria (Croucher *et al*, 2003)

Question	Is the research question clear?	E
Theoretical perspective	Is the theoretical or ideological perspective of the author explicit?	D
Context	Is the context or setting adequately described?	E
Sampling	*Qualitative:* Is the sample adequate to explore the range of subjects and settings, and has it been drawn from an appropriate population? *Quantitative:* Is the sample size adequate for the analysis used and has it been drawn from an appropriate population?	D
Data collection	Was the data collection adequately described and rigorously conducted to ensure confidence in the finding	E
Data analysis	Was the data analysis adequately described and rigorously conducted to ensure confidence in the findings?	E
Reflexivity	Has consideration been given to alternative explanations of results? Has consideration been given to any limitations of the methods or data that may affect the results?	D
Generalizability	Do any claims to generalizability follow logically, theoretically or statistically from the data?	D
Ethics	Have ethical issues been addressed and confidentiality respected?	D
E = Essential, D = Desirable		

7. RESEARCH RESULTS

The systematic review of studies from an initial set of 982 references led to the final selection (Table 1, Table 2, and Table 3) of 24 studies included in this review (See Table 3 and Table 4). E-government adoption factors from these 24 studies were then grouped into common themes in instances where these factors shared strong similarities (See Table 4).

Fortunately, all sources that passed the inclusion stage (Table 1) of this study also managed to pass the "Essential" quality criteria as well (Table 2). This explains why the last two columns of Table 3 are similar.

Table 3 - Sources of References at Each Stage

Databases / source	Total hits	After de-duplication	Potentially relevant	Passed Inclusion criteria	Passed quality criteria
Internet	521	60	17	13	13
Emerald Management	288	107	14	7	7
JSTOR	127	26	5	4	4
Springerlink	46	45	0	0	0

7.1 E-services' Adoption Factors

According to existing literature, in general, the adoption of e-government is influenced by nine (9) factors (Table 4): citizens' interactivity, government's perceived strategic value of e-government, ICT infrastructural capabilities, global challenges, government's vision and strategic thinking, institutional arrangements, human resources capabilities, government's political ideology, and socio-political and economic conditions.

It is unfortunately not possible to explain each row of Table 4 in detail mainly because of space constraints, but it is important to give a clear definition of each the above listed nine (9) e-government adoption variables, and to fully explain at least one row from Table 4. For this reason, the e-government adoption factor on government's vision and strategic thinking will be the only one to fully be described when explaining Table 4.

Table 4 – Grouping e-services adoption factors from literature

Factor	Related e-Service Factor
Citizens' Interactivity	Cultural and social influences of voters (Al Awadhi and Morris, 2009; AL-Shehry *et al.*, 2006; Rorissa and Demissie, 2010); Citizen participation (Holzer and Kim, 2006).
Government's Perceived Strategic Value of e-government	Relative advantage for the achievement of government's goals (Carter and Weerakkody, 2008; Rokhman, 2011); Perceived usefulness for the achievement of government's goals (Carter, 2008; Sang *et al.*, 2009; Suki and Ramayah, 2010); And benefits to the achievement of government's goals (Kamal, 2006; Potnis and Pardo, 2011).
ICT Infrastructural Capabilities	ICT related Technological factors (Aguila-Obra and Padilla-Mele´ndez, 2006; Al Awadhi and Morris, 2009; AL-Shehry *et al.*, 2006; Weerakkody et al., 2011) , digital divide (Al-Sobhi *at al.*, 2010); internet infrastructure (Arduini et al., 2010); lack of adequate ICT infrastructure (Bwalya, 2009; Rorissa and Demissie, 2010); IS infrastructure (Davison *et al.*, 2005); IT infrastructure (Ebrahim and Irani, 2005), access by individuals and organizations to ICT tools (Imran and Gregor, 2007; Rose, 2005); model of IT business value (Melville *et al.*, 2004); having separate IT departments (Reddick, 2004); ICT and telecommunication reform (Schware and Deane, 2003); and success of

Factor	Related e-Service Factor
	interoperability among different back offices (Westholm, 2005).
Global Challenges	External factors beyond Government's control (Aguila-Obra and Padilla-Mele´ndez, 2006); Government trade policies (Baliamoune-Lutz, 2003): Country's specificities (Gichoya, 2005): and relative little commonality across regions (Williams, 2008).
Government's Vision and Strategic Thinking	Strength of Government IT strategy (Davison *et al.*, 2005); Leadership vision and willingness to initiate change (Imran and Gregor, 2007).
Institutional Arrangements	Attribution of executive powers to government authorities (Yun and Opheim, 2010); Reforming bureaucracy (Al Awadhi and Morris, 2009); Organizational infrastructures (Davison *et al.*, 2005); Government's organizational strength (Ebrahim and Irani, 2005); Bureaucracy (Elsheikh *et al.*, 2008); Relative advantage of the institutional context of government (Hassan *et al.*, 2011); Spread of IT use and other key resources across all government departments (Melville *et al.*, 2004); Closer working relationships between government stakeholders (Hassan *et al.*, 2011).
Human Resources Capabilities	Managerial capabilities (Aguila-Obra and Padilla-Mele´ndez, 2006); information technology workforce capability (Al-Busaidy and Weerakkody, 2009); Ability to carry out more in-house ICT (Arduini *et al.*, 2010); IT skills (Ebrahim and Irani, 2005).
Government's Political Ideology	Government's sensitivity to cultural and social influences (Al Awadhi and Morris, 2009; Imran and Gregor, 2007); And Government's political ideology (AL-Shehry *et al.*, 2006; Bwalya, 2009; Rose, 2005; Serrano-Cinca et al., 2008; Weerakkody *et al.*, 2011).
Socio-Political and Economic Conditions	National level of economic development and political unrest (Imran and Gregor, 2007; Rorissa and Demissie, 2010); and competitive motive (Iyanda and Ojo, 2008);

Citizens' interactivity represents the extent to which public authorities interact with their citizens in the resolution of public affairs. Government's perceived strategic value of e-government measures to what extent public authorities believe in e-government as a tool to solve some of their crucial problems. ICT infrastructural capabilities are an assessment of the capacity of existing ICT infrastructure. Global challenges are concerned with a country's capacity of being a key player internationally on issues such as diplomacy, trade, foreign exchange, etc. Government's vision and strategic thinking assess how a government projects itself into the future as well as the sharpness of its strategies. Institutional arrangements represent the suitability of the internal organizational of government departments and of their functioning. Human resources capabilities are the assessment of the skills currently available in a country. Government's political ideology mainly focusses on the difference between government's policies on one hand, and the market-oriented political ideology on the other hand. Socio-political and economic conditions refer to the conditions of a country with regard to the social, political, and economic situation of its people.

A further analysis of the e-government adoption factor on governments' vision and strategic thinking reveals that credit must be given to Davison *et al.* (2005) and to Imran and Gregor (2007) for being dedicated to the study of the relationship between governments' vision and strategic thinking on one hand, and e-government adoption on the other hand. According to Davison *et al.* (2005), IT strategy or "e-government strategy refers to broad choices pertaining to IT scope, systemic capabilities, and IT governance", and the sharpness of such a strategy influences e-government adoption. Similarly, research from Imran and Gregor (2007) shows that leadership and political willingness in change management within the government sector is associated with the adoption of e-services.

7.2 The Resulting TPB Based e-Service Adoption Model

Figure 5 is a representation of the above listed e-government factors according to the Theory of Planned Behavior (TPB) proposed by Ajzen (1991). It is worth noting that the three TPB constructs on beliefs (behavioral, normative, and perceived control) are all inter-connected (by double arrows on Figure 4) and each of them is connected to the intention construct. However, the Perceived Belief Control construct (PCB) has a special role among TPB belief constructs in the sense that it is the only TPB belief construct that directly points to the behavior construct without necessary transiting the intention construct: in other words, behavior can be directly triggered by perceived belief control without the acknowledgment of an intention if there is a belief that one has the potential of being in control in the conduct of such behavior.

This special role of the PCB leads to the central issue of the identification of which of the nine (9) e-government adoption factors has an effect on PCB. It is proposed to link ICT infrastructural capabilities to PCB because the pace of the adoption of e-government highly depends on this factor, more than on the other factors. It can then be assumed that this belief on the capabilities of the ICT infrastructure also has a direct impact on the behavior of committing human resources and institutional arrangements in preparation of e-services. This therefore places human resources and institutional arrangements factors within the TPB behavior construct. The classification of the remaining six factors on the behavioral belief construct and on the normative belief construct is done as follows. Vision, strategic thinking, strategic value of e-government, and internal socio-politic and economic conditions affect one's attitude towards e-government adoption; therefore these factors can be linked to the behavioral belief construct. On the other hand, citizens' interactivity, global challenges, and political ideology can be seen as points of pressure attempting to institute e-government as the tool of excellence or norm for the running of public affairs, therefore classifying these factors under the normative belief construct.

The "decision" construct does not exist in the original TPB model of Ajzen (1991), but it exists on Figure 5 mainly to highlight the difference amongst intention, decision, and behavior in accordance with the aim of this paper which is "designing a model of the factors affecting LDCs municipal

councils' decision to commit resources dedicated to the successful implementation the preparatory stage of the adoption of e-services" (First stage of Figure 3). This leads to the issue of the examination of Figure 5 in the specific context of the above defined research aim.

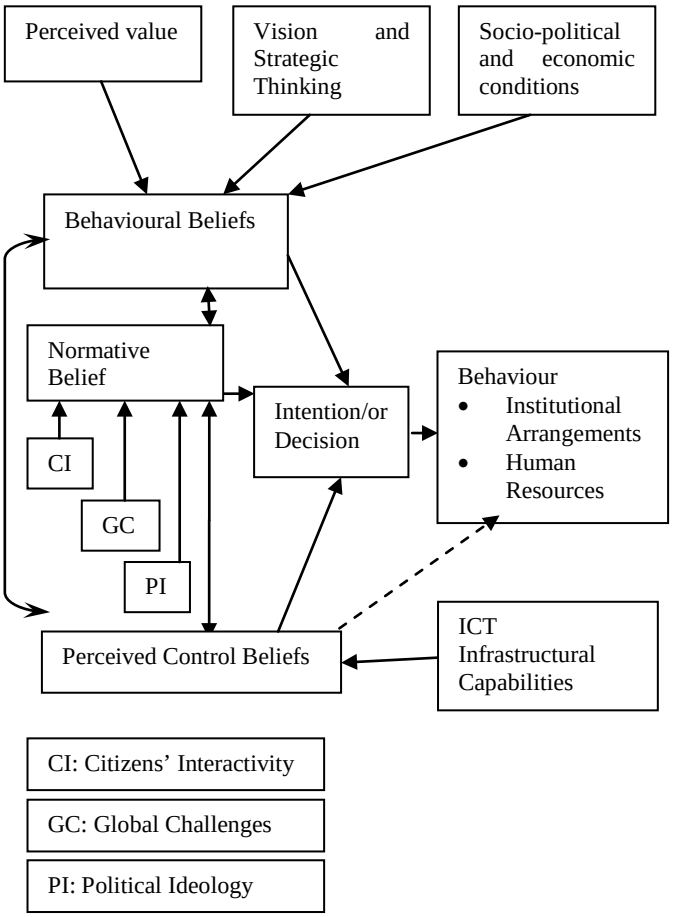

Figure 5. TPB based e-government adoption factors model

The application of Figure 5 to the specific context of the above defined research aim sets the following three hypotheses stating that the decision of LDCs' municipal councils to commit human resources and to engineer institutional arrangements in preparation of the adoption of e-services:

a) Can be directly taken by these councils (without any prior acknowledgment of their intention to do so) depending on the ICT infrastructural capabilities of their municipalities.

b) Depends on how they intend to use e-government in their belief of its potential as a strategic tool to fulfill their mandate to improve the socio-politico and economic conditions of their municipal citizens.

c) Depends on how they intend to handle their belief that they are being put under pressure by their interaction with their citizens, by national and global challenges beyond their control, and by their political ideology, to institute e-government as the tool of excellence or norm for the running of municipal affairs.

8. DISCUSSION AND FUTURE RESEARCH

The purpose of this section is to discuss the model proposed by this paper compared to existing literature on the preparatory stage of e-government in municipalities of less developed countries. This paper is similar to many of the studies reviewed as far as their research design is concerned. In fact, the results of 45.8% of the studies reviewed are based on a literature review as it is the case for this paper. However, very few studies (4.16%) use a systematic literature review as it is the case for this paper. Moreover, none of the studies reviewed examines e-service adoption both in municipals and in LDCs, while 94.4% of the reviewed studies only give attention to post-adoption e-service stages.

There is need to conduct more research on unique difficulties that confront decision-makers in LDCs in their efforts to switch and rely on imported technology when adopting e-government. Furthermore, there is a need for future research on the validation of the model proposed by this paper through the collection and analysis of relevant data from LDCs municipalities.

9. CONCLUSION

Conducting a systematic literature review of general e-government adoption factors by this study has led to the identification of nine (9) general e-government adoption factors that were incorporated into an e-government adoption model based on the Theory of Planned Behavior (TPB). A set of three hypotheses was then formulated on how to use this TPB based model for the identification of factors affecting less developed countries (LDCs) municipal councils' decision to commit resources dedicated to the successful implementation of the preparatory stage of the adoption of e-services. Even though the testing of these hypotheses is not conducted by this paper and it is only envisaged for future research, it is still important to note that LDCs municipals' e-government adoption factors are currently an under-researched area especially for the preparatory stage of e-government adoption.

10. REFERENCES

[1] Aguila-Obra A.R. and Padilla-Mele´ndez A. (2006), "Organizational factors affecting Internet technology adoption", Internet Research, Vol. 16 No. 1, pp. 94-110

[2] Ajzen I., (1991), "The Theory of Planned Behavior", Organizational Behavior and Human Decision Processes 50, pp. 179-211

[3] Al-Awadhi S. and Morris A. (2009), "Factors Influencing the Adoption of E-government Services". Journal of Software, Vol. 4, No. 6, pp. 584 – 590

[4] Al-Busaidy M. and Weerakkody V. (2009), "E-government diffusion in Oman: a public sector employees' perspective", Transforming Government: People, Process and Policy, Vol. 3 No. 4, pp. 375-393

[5] AL-Shehry A., Rogerson S., Fairweather, N.B., and Prior M., (2006), "The Motivations for Change Towards Egovernment Adoption: Case Studies from Saudi Arabia", eGovernment Workshop '06 (eGOV06)

[6] Al-Sobhi F., Weerakkody V. and Kamal M.M. (2010), "An exploratory study on the role of intermediaries in delivering public services in Madinah City", Transforming Government: People, Process and Policy, Vol. 4 No. 1, pp. 14-36

[7] Arduini, D., Belotti, F., Denni, M., Giungato, G., and Zanfei, A. (2010), "Technology adoption and innovation

in public services the case of e-government in Italy", Inf. Econ. Policy

[8] Baliamoune-Lutz M. (2003), "An analysis of the determinants and effects of ICT diffusion in developing countries", Information Technology for Development (10) 151–169

[9] Basu, S. (2004), "E-Government and Developing Countries: An Overview", International Review Of Law Computers & Technology, Volume 18, No. 1, Pages 109–132.

[10] Bwalya K.J., (2009), "Factors Affecting Adoption of e-government in Zambia", EJISDC, vol.38, No. 4, pp. 1-13

[11] Carrizales T. (2008), "Functions of e-Government: A Study of Municipal Practices", State and Land Government Review, Vol. 40, No. 1, 12 – 26

[12] Carter L. and Weerakkody R. (2008), "E-government adoption: A cultural comparison", Inf Syst Front 10, pp. 473–482

[13] Carter, L. (2008), "E-government diffusion: a comparison of adoption constructs", Transforming Government: People, Process, and Policy, Vol. 2 No. 2, pp. 147-161.

[14] Croucher, K., Quilgars, D., Wallace, A., Baldwin, S. and Mather, L. (2003), "Paying the Mortgage? A systematic literature review of safety nets for homeowners". York: Department of Social Policy and Social Work.

[15] Davison R.M., Wagner C. and Ma L.C.K. (2005), "From government to e-government: a transition model", Information Technology & People, Vol. 18 No. 3, pp. 280-299

[16] Ebrahim Z. and Irani Z. (2005), "E-government adoption: architecture and barriers", Business Process Management Journal Vol. 11 No. 5, pp. 589-611

[17] Elsheikh Y., Cullen A. and Hobbs D. (2008), "e-Government in Jordan: challenges and opportunities", Transforming Government: People, Process and Policy, Vol. 2 No. 2, pp. 83-103

[18] Gichoya D. (2005), "Factors Affecting the Successful Implementation of ICT Projects in Government", Electronic Journal of e-Government, Volume 3 Issue 4, pp. 175-184

[19] Gil-Garcı´a R.J., Pardo T.A. (2005) "E-government success factors: Mapping practical tools to theoretical foundations", Government Information Quarterly 22, 187–216

[20] Hassan H.S., Shehab E. and J. Peppard (2011), "Recent advances in e-service in the public sector: state-of-the-art and future trends", Business Process Management Journal, Vol. 17 No. 3, pp. 526-545

[21] Heeks, R. (2006). "Understanding and measuring eGovernment: international benchmarking studies", Paper prepared for UNDESA workshop, "E-Participation and E-Government: Understanding the Present and Creating the Future", Budapest, Hungary, 27-28 July 2006.

[22] Heeks, R. (Ed.) (1999), Reinventing Government in the Information Age: International Practice in IT-Enabled Public Sector Reform, Routledge, London

[23] Imran A. and Gregor S. (2007), "Comparative Analysis of Strategies for e-Government in Developing Countries" , Journal of Business Systems, Gorvenance and Ethics, Vol. 2, No. 3, pp. 89 - 99

[24] James, J. (2001), "Information technology, cumulative causation and patterns of globalization in the third world", Review of International Political Economy 8, 147-162

[25] Kabir and Baniamin H.M. (2011), "Models of E-Government: Some Missing Links for Developing Countries", Nepalese Journal of Public Policy and Governance, Vol. 28, No.1, pp. 37-48

[26] Kamal M.M. (2006), "IT innovation adoption in the government sector: identifying the critical success factors", Journal of Enterprise Information Management, Vol. 19, No. 2, pp. 192-222

[27] Maumbe B.M., Owei V., Alexander H. (2008), "Questioning the pace and pathway of e-government development in Africa: A case study of South Africa's Cape Gateway project", Government Information Quarterly 25, pp. 757–777

[28] Melville N., Kraemer N., and Gurbaxani V. (2004), "Review: Information Technology and Organizational Performance: An Integrative Model of IT Business Value", MIS Quarterly Vol. 28 No. 2, pp. 283-322

[29] Ndou V.D., (2004). "e–Government for Developing Countries: Opportunities and Challenges", EJISDC 18, 1, 1-24.

[30] Potnis D.D. and Pardo T.A. (2011), "Mapping the evolution of e-Readiness assessments", Transforming Government: People, Process and Policy Vol. 5, No. 4, pp. 345-363

[31] Rokhman, A. (2011), "E-Government Adoption in Developing Countries; the Case of Indonesia", Journal of Emerging Trends in Computing and Information Sciences, Volume 2 No.5, pp. 228 - 236

[32] Rorissa A. and Demissie D. (2010), "An analysis of African e-Government service websites", Government Information Quarterly , Vol. 27, pp.161–16

[33] Rose R (2005), "A Global Diffusion Model of e-Governance", Jnl Publ. Pol., vol. 25, No.1, pp. 5-27

[34] Sang S., Lee J.D. and Lee J. (2009), "E-government adoption in ASEAN: the case of Cambodia", Internet Research, Vol. 19 No. 5, pp. 517-534

[35] Schware R. and Deane A. (2003), "Deploying e-government Programs: the strategic importance of "I" before "E" , Information, Volume 5, No. 4, pp. 10 - 19

[36] Serrano-Cinca C., Rueda-Toma´s M. and Portillo-Tarragona P. (2009), "Determinants of e-government extension", Online Information Review, Volume 33, Number 3, 2009 , pp. 476-498

[37] Suki N.M. and Ramayah T., (2010), "User Acceptance of the E-Government Services in Malaysia: Structural Equation Modeling Approach", Interdisciplinary Journal of Information, Knowledge, and Management Volume 5, pp. 395-413.

[38] Weerakkody R., Ramzi El-Haddadeh R., and Al-Shafi S. (2011), "Exploring the complexities of e-government implementation and diffusion in a developing country", Journal of Enterprise Information Management, Vol. 24 No. 2, pp. 172-196

[39] Williams, M.D. (2008), "E-government adoption in Europe at regional level", Journal of Public Policy, 25, I, 99-I32