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Implementation of Grassroots E-Government Services in South Africa: A Literature Analysis

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Abstract

This paper examines the implementation of grassroots e-government services in South Africa posing the questions: How are e-government services situated in South Africa's governance framework. In what ways can grassroots e-government services be benchmarked, and to what extent are grassroots e-government services implemented in South Africa? The literature reveals that South Africa's institutional governance framework positions local government as key to achieving better public service delivery and transformation at local and community levels and through early adoption placed information and communications technology (ICT) in its governance operations. With regard to ways with which to benchmark e-government, it was identified that the e-government research area is broad and complex, making it difficult to study exhaustively across all its dimensions with a multiplicity of accepted metrics on the main quantitative negating other non-technical dimensions applicable at any level of implementation. It was evident that the implementation of grassroots e-government services is ad-hoc, only just emerging and becoming more visible particularly on the supply side level. However, service customisation for relevance lags significantly. Given the intricate synergy between e-government and service delivery, the provision of grassroots e-government services would empower citizens' democratic participation in governance, broaden ownership and ultimately lead to e-democracy through increased e-participation.

The implications for theory and practice of this study include that there is continued theoretical and practical interest generated by the e-*government concept. Scholars of diverse disciplines interrogate various aspects of* e-*government while practitioners seek for ways to improve its implementation. Even as* e-*government research at the grassroots has grown, critics point that empirical studies to inform policy are limited. There is also an acute need to build a theoretical base on the customisation of* e-*government for relevance to needs at the local grassroots levels to inform subject understanding and consequently practice.*

Keywords: *E-Government; E-Government Services, E-government-grassroots Levels; South Africa.*

Introduction

Incorporating ICTs in public service known as e-government is no longer a novelty but an essential aspect of the modern day government enterprise (Glyptis *et al,* 2020; Twizeyimana and Andersson, 2019). As stated by Janssen *et al,* (2011) "[i]n the digital era public organisations are changing their strategies, structures, processes and IT-infrastructure to fully benefit from the promises of information and communication technology". In the same vein, Mawela, Ochara, and Twinomurinzi (2017) reckon "[i]n the public sector, ICT investment primarily manifests itself as Electronic Government (eGovernment) programmes."

By better leveraging ICTs, governments

including those in developing economies implement *e*-government for among many reasons to attain efficiency and cost effectiveness in administration and at a broader level enhance efficiency in public service delivery (Meiyantia, *et al,* 2018; Susanto, 2015). The successes and failures in *e*-government projects implementation in developing economies are widely reported (Gunawong and Gao, 2017).

Problem statement

It can be argued that there is an existing blueprint for 'how to' implement *e*-government and 'how far' *e*-government has been implemented around the world. For many years, research focused on portraying development at the supra national levels. However, in conformity with a shift in global public service delivery practice, focus has swung to the grassroots (Chen and Kim, 2019; Mawela, Ochara, and Twinomurinzi, 2017). Grassroots refer to "… governments that are not central or national but are state, provincial, regional, municipal, or city governments" (Zahran, *et al,* 2015). Early adoption of and stronger policy ingenuity spurred South Africa to take a leading role in e-government both in the Southern Africa Development Community (SADC) region and in the African continent. South Africa today has a stronger e-government policy position and recognisable implementation, however, a scarcity of empirical studies means little is known about grassroots e-government services. In addition, there is minimal discourse examining e-government customisation to meet the requirements of users at the grassroots levels. This study is premised on the following standpoints:

- How are *e*-government services situated in South Africa's governance framework?
- In what ways can grassroots e-government services be benchmarked?
- To what extent are grassroots e-government services implemented in South Africa?

Research Methodology

This paper examines the implementation of grassroots e-government services in South Africa by means of a review of literature. The literature review as a research methodology "… can serve as a basis for knowledge development, create guidelines for policy and practice, provide evidence of an effect, and, if well conducted, have the capacity to engender new ideas and directions for a particular field…" (Snyder, 2019). *E*-government is both a theory and practice oriented field, thus necessitating the consultation of scholarly, official and technical literature.

Conceptualising e-government

Applying technology in and/or for government is an old practice, Nevertheless, it is natural for a technology domain to undergo constant and continuous development and changes, which means that while *e*-government was coined in the mid-90s, it is still difficult to characterise today and several terms have been proposed (Sokolova, 2006). With ICTs reaching ubiquity (phenomenal increase in the use and broad acceptance of ICTs in many aspects of everyday life), numerous concepts often beginning with the prefix *'e'* describing anything that is electronic have emerged. The practice of *e*-prefixing technology related terms has been questioned or worse called nonsensical (Cernuzzi, *et al*, 2011; Oliver and Sanders, 2004). Cernuzzi, *et al*, (2011), reckon the promise offered by the advent of the Internet in the 90s led to the blossoming of e- anything although reality later revealed that such a perception of a rich variety of opportunities was an 'inflated bubble'. Another challenge is semantic as the terminology is sometimes written in full 'electronic government', abbreviated '*e*Gov', hyphenated 'e-gov', certain letters put in caps 'eGov or e-Gov', and so forth (eGov, e-gov) (Löfstedt, 2012; D'agostino *et al.,* 2011). Oliver and Sanders (2004), regard governments' adoption of terms such as 'e-governance', service delivery' and '*e*-democracy' as a necessary 'chaotic parlance' attempting to capture the essence of change that technology has unleashed. Some of the contemporary concepts representing the application of technology in government and for governance are: *e*-services, *e*-government, online government and digital government.

There are two dominant definitional viewpoints to e-government. The first simplistically limits *e*-government to the application of ICTs especially the Internet for governance. This is challenged by a

deeper definitional approach that acknowledges that *e*-government is more than technology adoption including the re-engineering of public policy and administration (Amara, 2019; Almarabeh and AbuAli, 2010). The editorial by Janssen, *et al,* (2011) exemplifies the definitional perspectives acknowledging that "*[e]*-government should be viewed as more than a simple layer put on to existing structures". By the same token, Kearns (2004) calls the perception that *e*-government is merely about delivering government services over the Internet as not only flawed but also narrow for broadly oversimplifying *e*-government's nature and vision. Further, this fails to accommodate and recognise the wide array of governmental activities that are not direct services or technologies other than the Internet portraying that a nicely designed, user-oriented website is sufficient when instead substantial investments in people, tools, policies, and processes are needed as the real work of *e*-government is inside the government itself.

With regard to what *e*-government entails, it is acknowledged that it affords the government enterprise connections/relationships electronically with a variety of stakeholders referred to as interaction domains or delivery models (Mawela, Ochara, and Twinomurinzi, 2017). Some of the most distinguishable relationships/connections are with other forms of government, business, citizens and nonprofit entities, hence, when scholars identify the types of *e*-government, they tend to use the relationships above resulting in what is termed government to government or G2G; government to business or G2B, government to citizens or G2C and government to non- profit organisations or G2N, and so on (Kalbasa *et al.,* 2016; Alshehri and Drew, 2010).

Research and implementation discourse conceptualise *e*-government as consisting of two complementary dimensions namely: the implementation dimension examining the technology, budget, and human resources required and the adoption dimension that studies the design and approach of e-government service delivery for wider user participation and adoption (Joshi and Islam, 2018). Similarly, *e*-government is characterised as looking into either the supply side also called the government's perspective or e-government service availability i.e. those who implement to provide *e*-services and the demand side also called the users' perspective or *e*-government usage by business and households i.e. those who receive and/or use the implemented *e*-services (Bakunzibake, Klein and Islam, 2019). For instance, Bakunzibake, Klein and Islam (2019) suggest that "[i]n an e government service oriented project, the service demand side (e.g. citizens and businesses) and supply side (e.g. government agencies) are the primary stakeholders." Yet again others identify what is termed the back office side or internal administration when transactions and information sharing occurs both within and between governments (G2G) *vis-à-vis* what is termed the front office side or external stakeholders such as G2C and G2B transactions (Azelmad, Nfissi, and Mohamed, 2018; Brown, 2005). Internally, ICTs impact on and reform the government operations, ranging from "creating a networked internal working environment to requirements for new skills in the civil service and new administrative processes" (Brown, 2005). As was acutely argued above, *e*-government essentially has two dimensions and its implementation as diverse scholars confirm thus usually starts by improving internal back administration, then when the relevant systems internally have been set up the other external stakeholder relationships become a priority (Alshehri and Drew, 2010; Brown, 2005). The above perhaps explains why growth/ maturity models are popular in the benchmarking and assessment of e-government that reflect the growth path to often begins with having a webpage providing information about the government (opening hours, location and contact details, description of the government, etc.) progressing to some level of interactivity (bi-directional- communication) such as when forms can be filled and submitted through a webpage, queries made and responses obtained and to an advanced transactional stage when a variety of services are offered remotely without one having to move physically to the government department (Alshehri and Drew, 2010).

Situating E-Government Services in South Africa's Governance Framework

In situating the role of e-government in South Africa's governance framework, scholars credit democratic South Africa for early adoption of a policy position that placed ICT in its governance operations that

recognised providing wide access to government information and services from the constitutional level (Jantjies, 2010; Matavire *et al*, 2010). E-government in South Africa thus can be traced to the early nineties with significant in-roads made by the presidency of Thabo Mbeki which emphasised government's ideology of ensuring that individuals regardless of their circumstances play a meaningful role in decision making and in governance by among other interventions having access to information (Jantjies, 2010). Mbeki's government played a key role in speaking of, consulting on and developing policies on e-government and set up various implementing agencies such as the State Information Technology Agency (SITA) and Government Information Technology Officers Council, GITO Council, Multipurpose Community Centres (MPCCs) (Jantjies, 2010). Another milestone was the adoption of the 'Batho Pele' mantra, which put people first (Jantjies, 2010).Notable policy documents include: the 'Report of the Presidential Review Commission on the Reform and Transformation of the Public Service in South Africa' (1998) which provided recommendations on information management, systems and technology; Electronic Government The Digital Future: A Public Service IT Policy Framework (2001) that prioritised interoperability, security, reduction of duplication, and economies of scale in the implementation strategy; and the a research document entitled the "*e*-Government Gateway Project" produced through a partnership between the Centre for Public Service Innovation (CPSI), Department of Public Service and Administration (DPSA) and SITA, having looked at ways of providing citizens with access to e-government services proposing a 7 model framework and strategy design for *e*-government (Smart service, Smart plug in, M-government, Government online, Centre services, Talk to government, and Computerized counter services) (Nengovhela, 2012; Visser and Twinomurinzi, 2008). Summarily, while SA is amongst the leading African states in the compulsory lawful structure and governance model, infrastructure, and personnel required for *e*-government, comparative to other lower middle income countries its broadband penetration remains poor (Gillwald, Moyo, and Stork, 2012).

The inglorious past and failings of the democratic dispensation have resulted in a South Africa of contrasting fortunes. This contrast is in the unsustainably high levels of unemployment and poverty as well as the unsavory distinction of being the most unequal nation in terms of income inequality internationally, simultaneously with strong links with the global economy (Oluwatayo and Mantsho, 2016: Lomahoza, Brockerhoff and Frye, 2013). The chequered past uniquely influences service delivery and e-government (Jantjies, 2010). Democratic South Africa uses a single system of cooperative government consisting of three tiers at the national, provincial and local level through the supremacy of the constitution "constitutional democracy" (Twenty Year Review South Africa 1994 – 2014). The new single system of cooperative government is described in literature as a 'unitary state' and 'a unitary intergovernmental framework' (Government of South Africa, 2020; Chitiga-Mabugu and Monkam, 2013).

There are challenges associated with the institutional framework of government that South Africa adopted that affect service delivery at the grassroots (Treasury, 2011). The World Bank (2011) obverses that because of the decentralised intergovernmental fiscal framework that allocates funds from national to the provincial governments, based on an equitable share linked to population and poverty and through conditional grants, there is a critical mismatch in terms of resource allocation with lesser resources reaching local government; the service arm of government required to be most in touch with the citizens in comparison to structures above it. The municipal boundary demarcations post 1994 discontinued the distinction in terms of administration between towns and the poor countryside which created a service divide noting instead the strong interlinkages thus placed the entire country under the jurisdiction of local government from small villages to metro cities (Chitiga-Mabugu and Monkam, 2013, Treasury, 2011).

It is evidently clear that South Africa's institutional governance framework positions local government as key to achieving better public service delivery and transformation at local and community levels. There is also the role of global forces which have seen the increased use of ICTs in public service including at sub national levels and the adoption of governance systems that permit the delegation of traditionally national responsibilities to subnational

entities (Lanvin and Lewin, 2006). Lanvin and Lewin (2006) submit that there is an "emerging role of cities (and of subnational entities generally) to become global players—as attractors of foreign investment, competitiveness hubs, and/or platforms for the combination of local and international components of global production and supply chains". ICT innovation broadly and, electronic governance in particular are characteristic of 'global cities' and many cities already rank themselves independently of their nation states in terms of the cost of living and quality of life as well as with regards to the extent of their e-connectedness or communication and transacting using electronic devices and networks popularising nomenclature like digital cities, *e*-cities, Internet cities, or Knowledge Cities (Adams and Newton Reid, 2008). With this emerging role cities are now at the heart of *e*-government implementation both independently and/or collaboratively with national government and the private sector and in so doing, they not only benefit the grassroots but the country as a whole.

Ways with which to Benchmark the Implementation of Grassroots E-Government Services

Comparing two or more institutions or entities using a set of indicators is called benchmarking (Rorissa, Demissie and Pardo, 2011). It is widely recognised that monitoring and comparing the status of *e*-government, requires a set of feasible, relevant and internationally comparable indicators that serve as useful inputs to the formulation of policies and strategies for effective e-government development *(United Nations Economic Commission for Africa, 2014). E*-government benchmarking reviews the comparative performance or offers insights on the state of play between participating nations or agencies and is an essential part of the response to current socio-economic challenges and a crucial step in its improvement cycle (Afyonluoglu and Alkar, 2017; Delivering the European advantage: how European governments can and should benefit from innovative public services, 2014).E-government evaluation is important for discovering the current state of e-government development against objectives set in line with the various strategies and action plans (Morales and Bayona, 2018; Ostašius, and Laukaitis, 2015). In the same vein, Susanto (2015) acknowledges that measuring e-government can offer crucial signposts to point government policy makers in the right direction. It is in this regard that organisations such as the United Nations (UN), World Bank, Information Technology Union (ITU), Organisation for Economic Co-operation and Development (OECD), European Union (EU) among others comparatively assess e-government development on a continuous basis churning out significant literature on this subject (Rorissa, Demissie and Pardo, 2011).

E-government is a complex issue that has political, social, technological, and organisational aspects, monitoring and evaluation each requiring a different set of indicators and measures (Codagnone, and Undheim, 2008). The observations of Graafland-Essers and Ettedgui (2003) are that because the e-government research area is too broad, it is therefore difficult to study exhaustively across all its dimensions and the tendency is to "concentrate on the supply-side of e-government, availability and level of sophistication of online services and usage". The above sentiments concur to the criticisms made about international e-government evaluation which has tended to rely on supply-side benchmarking lacking in rigour through its dependence on web based surveys to get their data (Codagnone, and Undheim, 2008). On the matter of rigour, it is observed that in general e-government studies in developing countries tend to be definitional in approach and rely on secondary data (Burke, 2012). There is also a diversity of terminology that compounds the general understanding to *e*-government evaluation and or benchmarking including such terms as monitoring, ranking, assessment, technique, method, toolkit, etc. Further criticism of *e*-government evaluations point that there are several accepted indicators or metrics and no uniform or complete set of evaluation metrics with different authors using different methodologies and non-comparable results (Morales and Bayona 2018; Rorissa, Demissie and Pardo, 2011). There is also a concern that the multiplicity of metrics used for evaluating e-government are generally quantitative tending to evaluate results of ICT investments using ICT indices and thus negate the other non-technological dimensions to e-government as non ICT indices are often an insignificant exception (Morales and Bayona 2018; Zahran, *et al*., 2015)

creating an impression that e-government is only about ICT.

Sample *e*-government evaluation indices from literature include the, e-readiness index, *e*-participation index, internet penetration, ICT infrastructure and access indices, evaluations of web presence/online presence, evaluations of websites and portals, tele density, e-literacy, digital divide, human development index, among others (United Nations Economic Commission for Africa, 2014; Dzhusupova, *et al.,* 2010). Rorissa, Demissie and Pardo (2011) put forward that the co-indicators [some of which are identified above] collectively form a framework for e-government evaluation.

It should be acknowledged that there is a lack of unanimity in e-government literature as to what theories or models are applicable for benchmarking e-government (Zahran, *et al.,* 2015; Ojo, Janowski, and Estevez, 2011). In this regard, it is observed that in the early days, it was claimed that there is no specific e-government theory owing to disagreements as to what *e*-government really is, a situation that arguably persists to the present day while others argued that e-government theory development is poor and has methodological limitations. Ojo, Janowski, and Estevez, (2011) suggest that there is "a need for a better theoretical and conceptual foundation for benchmarking in general and for EGOV benchmarking in particular". Notwithstanding, the above shortcomings, this paper adopts the view of Zahran, *et al.,* (2015) that identifies that "a framework or a model is a set of concepts, values, metrics, and practices that represent a method of viewing reality" used to derive "suitable indicators for evaluating various e-government initiatives" (Berntzen and Olsen cited in Zahran *et al*., 2015). E-government evaluation or benchmarking is categorised by the aspects (indicators) or objects covered in the model or framework (Zahran, *et al.,* 2015).

In benchmarking e-government, most theories and models tend to focus on technology adoption and/ or its diffusion (growth / maturity) (Janssen, *et al,* 2011) but also there are some *e*- readiness assessments. The key distinction between the two are that the earlier refers to the level attained in terms of e-government progress based on the assessment while the latter looks into the requirements that are necessary for e-government to be implemented (Ostašius, and Laukaitis, 2015). Growth/maturity models present the evolution and / or sophistication of e-government through sequential steps (Joshi and Islam, 2018; Ostašius, and Laukaitis, 2015). The number of distinct levels, steps or stages varies. The overarching argument is that in general an e-government development path can be discerned wherein the scope increases over the years leading to a larger number of people using its services, technology matures and diversifies, the number of services increase and their quality improves thus many maturity models try to capture this development in terms of distinct "levels" (Mukamurenzi, Grönlund and Islam, 2016). In this regard while in the mid-1990s the focus was on websites, today it is about integration, infrastructure, and open data (Mukamurenzi, Grönlund and Islam, 2016).

Further assessment of literature reveals that a differentiation can be made between models that are applicable for e-government evaluation at the different levels of government such as international, national and local government (Zahran, *et al.,* 2015).

The Extent of Grassroot E-Government Services Implementation in South Africa

To fully appreciate the extent to which grassroots *e*-government services have been implemented in South Africa, it is important to first paint briefly the picture of the state of play from the supra national levels and cascade down. E-government development echoes the global development interplay that contrasts world economies in terms of patterns and gaps between and among countries thereby distinguishing between developed (DCs) of the industrialized "West" or "North" and the least developed countries (LDCs) of the "South" (Caddell and Hall, 2005) and "developed economies, economies in transition and developing economies" *(United Nations World Economic Situation and Prospects, 2019).*Ordinarily the most economically advanced states rank top for having the most advanced e-government with upper and upper-middle income countries somewhere in the middle and the least developed economies at the bottom (ICT Facts and Figures, 2017; United Nations Department of Economic and Social Affairs, 2016).

Many countries in Africa and in the emerging markets of Asia and Latin America have experienced

substantial growth and dramatic expansion in mobile penetration and soaring Internet use and broadband access this as the mature markets reach saturation, and in part through the ability offered by the Internet to circumvent older technology and infrastructure and thus be online without the necessary backbone (The world in 2010 ICT Facts and Figures, 2010).

Evaluations of SA's e-government conclude that a variety of services are offered yet few or close to no government department offers services beyond interact level (Nengovhela, 2012; Ngulube, 2007). Likewise, Mtimunye (2009) came to the conclusion that while the face and character of the ICT landscape in SA had radically altered creating a nation described as perched between performance and promise, e-government's full potential was yet to be realised. A damning claim is that "research indicates that ICT has historically been viewed as a secondary operational function within municipalities in South Africa" (The Smarter Cities of the Future White Paper: ICT Innovation and Adaptation, 2017). Similar evaluations are plentiful.

On the positive side, *e*-government is recognisable at various levels of government in South Africa (almost all government departments and agencies have their own website mostly informational e.g. the e-Natis system, national population register, deeds register), the installation of public information terminals around the country (MPCCs/ Thusong centres) for Internet and email access in certain rural centres and the funding of computer centres in rural communities with, some level of transactional services and/ or websites such as the electronic processing of grant applications from remote sites and SARS e-filing (Mphidi, 2008). South Africa also boasts extensive rural electrification, shorter distances between a multitude of towns (development nodes) in comparison to its counterparts on the continent and by now a mobile market already saturated or reaching saturation.

The Provincial Government of the Western Cape: Cape Gateway Project Evaluation (2003) alludes that "numerous e-government and portal initiatives are at varying stages of formulation and implementation". Some identified examples of portals are the Cape gateway and Gauteng gateway whilst at the strategy level one can point to the: (Gauteng Department of e-Government Strategic Plan2020-2025; Western Cape: draft e-Government Strategy 2012-2019; Provincial Government of the Western Cape (WC), Cape Gateway Project Evaluation, 2003). The WC provincial government are pioneers in e-government in South Africa some of their efforts traced as far back as 2001 (Evaluation of the Cape Gateway Project, 2003). Gauteng has gone as far as establishing a department of e-government required to set up the core network infrastructure. Critically, the Gauteng government realised that to implement *e*-services they need to digitise back-offices and to re-engineer business processes as well as create and run a digitised document management system (Gauteng Department of E-government, 2017). Maumbe, Owei and Alexander (2008) conclude that undoubtedly, the Western Cape's e-government programme is well ahead of other provinces in South Africa, some like the Eastern Cape were at that time still struggling to set up their first e-government initiatives.

Conclusion

E-government implementation and general service delivery are invariably tied to the intricate links between the three tiers of government. The resultant challenge is that national government, the highest structure of government although far removed from the majority of the citizens is better resourced than the provincial and importantly the municipal government system at the grassroots; the action unit of government in terms of service delivery. Owing to the above observation in South Africa national government has been the key driver to e-government and that needs to change. Advocated for is a strategic shift in focus to local government municipalities the sphere of government in touch with the masses. At the municipal level, the picture is less clear.

The South African government has made commendable strides from the dawn of democracy in *e*-government development albeit considerable challenges remain in particular at the grassroots level. Examining grassroots *e*-government service implementation in South Africa through a review of literature above revealed that there is visibility in terms of the supply side of e-government, however, the demand side to e-government is still very unsatisfactory and customisation lags significantly.

There are implications for theory and practice associated with this examination of the

implementation of grassroots e-government services in South Africa. As a theoretical concept, e-government continues to generate interest and remains a focus area of scholars from diverse disciplinary affiliations. In the various echelons of government around the world, practitioners such as government technical experts and bureaucrats also continually seek for ways to improve e-government implementation. While there has been growth of research that focuses on e-government at the grassroots in developing countries, critics point that empirical studies to inform policy are limited instead the common tendency is to rely on sweeping national statistics. It is also critical to build a theoretical base on the customisation of e-government for informing subject understanding and as a consequence influence practice. There is a scarcity of e-government research that focuses on the customisation of e-government services in general and at the grassroots in developing countries including in South Africa.

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