A Model for Designing, Implementing and Evaluating Citizen-Centric e-Government in Namibia

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Abstract. There is a shortage of e-Government research from a citizen-centric perspective within the African continent. Focus has been on how governments can improve service delivery by being efficient and effective. Arguably, the focus of e-Government research appears inspired by the New Public Management theory that aims to import private sector operations into the public sector. While benefits can be drawn from this approach, governments appear to fail to completely play their role of generating public value among citizens. The focus on government's view on e-Government often short charge the citizens who are expected to adopt and use e-Government. This paper adds to the body of knowledge by proposing a model for citizen centric e-Government that is suitable for Namibia.

Keywords: e-Government · Citizen-centric · ICT · Public value

1 Introduction

Despite the plethora of research on electronic government (e-Government) the success of e-Government remains low [1]. The failure rate is even higher within the African continent as reflected by a low electronic participation [2]. African researchers have proposed different models showing factors that could contribute to successful e-Government [2–4]. Of concern is little focus on citizen-centric e-Government. The literature suggests that e-Government constitutes of different stakeholders with different needs [5]. Of all the stakeholders, it is the users who play a critical role that determines the success of e-Government hence the need for citizen-centric e-Government [6]. At international level, research appears to shift towards the proposition of citizen-centric e-Government [5, 7, 8]. Authors have focused on factors for improving electronic service (e-Service) delivery while some have focused on user satisfaction [8]. Some authors focused on factors of designing, implementing and evaluating citizen-centric e-Government [10] while another growing research base has focused on the principles of public value as a determiner for citizen-centric e-Government [7, 9].

The literature presents different models and frameworks that can be adopted to promote citizen-centric e-Government. There seems to be a lack of consensus and conclusion on the subject as researchers suggest similar and different factors. Hence,

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these different models may pose a challenge to under resourced African countries as they look at adopt frameworks or models for implementing citizen-centred e-Government. Besides, contextual factors have shown to play a critical role in shaping the success of e-Government. As such, this study aims to propose a model for citizen-centric e-Government suitable for Namibia. Namibia is one of the countries in Southern Africa that has shown interest in e-Government as reflected by the publication of an e-Government strategic action plan for 2014 to 2018. To meet its objectives, the paper uses public reform theories to justify its view of citizen-centric e-Government. The paper makes use of a literature review to argue for a suitable model of citizen-centric e-Government for Namibia.

1.1 Citizen-Centric e-Government

e-Government has many stakeholders with different interests and objectives. This is clearly shown in the literature were the conceptualisation of e-Government has been mainly from one particular stakeholder, that is the government's point of view with topics of improving public service delivery, accountability, efficiency and transparency taking the centre stage [10, 11]. This focus on government centred e-Government can be attributed to the dominant public sector reform theory a government can adopt. However, the popularity of government centred e-Government has created a shortage of holistic models and theoretical frameworks for evaluating e-Government from other stakeholders' perspective with citizens in particular. This is important given that these stakeholders face unique challenges in relation to their adoption and use of e-Government. [12], in reference to the Obama administration, pointed out that a government's commitment towards transparency through e-Government does not translate to increased citizen engagement or participation. More so, citizens constitute the most significant stakeholders of e-Government services hence their involvement is key to the success of e-Government [5, 6]. By focusing on the interests, aspirations and the ICTs used by the citizens, resultant e-Government platforms are expected to create public value that is widely regarded and expected by the citizens [10, 11]. The next section uses public sector reform theories to explain how investments in e-Government can end up being government centred or citizen-centric.

1.2 Theories on Public Sector Reform

Theories or paradigms that define the way governments operate can be divided according to New Public Management (NPM), joint-up government and public value [10]. According to [10], these public sector reform theories determine the way a government invests and conceptualise e-Government.

NPM and Joint-Up Government. The principles that underlines the NPM theory were copied from the private sector and adopted in government with the idea of making governments efficient, effective and accountable [13]. According to [10], each government is therefore expected to streamline its operations into 'silos' with citizens viewed like customers just like in the private sector. In addition to NPM, the introduction of joined-up government saw a slight shift from NPM public sector reform

theory that had more focus on "structural devolution, disaggregation, and single-purpose organizations, to propose a joined-up approach, which treats government as an integrated" unit [10]. The joined-up government public reform focuses on reducing challenges associated with fragmented government structures. However, both the NPM and joined-up government remain closely related with a focus on effectiveness and efficiency though joined-up government advocate for coordination among different government units. As such, technology investments under NPM would see the government focusing on meeting these goals of being more responsive, accountable, transparent, and results-driven, as well as decentralized, efficient, and customer-oriented. This implies that if Namibia assumes a NPM and joined-up government, the government's adoption and use of e-Government would focus on improving service delivery.

Public Value Public Sector Reform. Moore introduced the concept of public value in 1995 [7, 14]. Researchers pointed out that there is no universal definition of what public value is given that it is driven by contextual factors [7, 14]. Different forms of public value can be identified as the government create value for citizens that included operating public organisations effectively and efficiently, promoting "equity, democracy, openness, transparency, confidentiality, responsiveness, environmental sustainability, citizen's self-development, user orientation, quality services" [10]. The public value concept argues that governments do not operate like private companies as assumed by NPM. As such, the public value paradigm suggests that public managers and citizens have a role to play in a society [12]. It is believed that "citizens derive value from the consumption of public services" (Kelly et al. 2002 in [7]) hence the state should be guided by principles of public value in its delivery of public service [11]. This implies that the use of ICTs is not meant to derive benefits to the state alone as suggested by NPM and joined-up government theories but rather help the state create and deliver value to the citizens. This could be reflected by a government's focus on citizen-centric e-Government. For instance, Namibia's e-Government strategic action plan for 2014 to 2018 shows a shift towards citizen-centric e-Government through implementation of these reforms remain behind.

2 Literature Review

Shift towards the emphasis on citizen-centric e-Government has shown a growth in publications aligned to the subject. For instance, [5] used a literature review to propose seven strategies for developing and implementing citizen-centred e-Government. The proposed strategies included comprehensive planning for citizen-centred design; citizen information needs assessments; ICTs availability, expertise and preference; citizen engagement; iterative evaluation for continual improvement; community based partnerships and Politically Based Content and Design [5]. [7] proposed a framework for evaluating public value in e-Government. Their framework was evaluated through a data collection and analysis in Sri Lanka. Their framework concedes that e-Government can create public value through the "delivery of public services (DPS), the efficiency of public organizations (EPO), and achievement of socially desirable

outcomes (ASO)" [7]. Three factors determine DPS from a citizen's point of view namely the quality of information, the quality of e-Government service (two way communications) and the extent to which the e-Government platform is user-oriented. EPO is determined by the efficiency of the public office through e-Government and its openness as determined by transparency. Lastly, factors contributing to ASO include equity, self-development, trust in the government and environment sustainability. [7] conceded that the e-Government's compatibility to disabled citizens, use of native language and its available in rural areas promote the equity of e-Government.

[2] did a study aimed at sustainability of electronic participation (e-Participation) in South Africa. Their study looked into reducing the digital divide by engaging mobile technology in extending e-Government. In a way, their study is citizen centric as it focused on exploiting technologies that are popular among citizens in promoting e-Participation. Access to ICTs, ICT skills and attitude were evaluated using data collection and analysis to establish their influence on e-Participation using mobile technology. Their study found that socially excluded citizens are open to the idea of using mobile phones for accessing e-Government service despite a lack of formal structures and policies supporting mobile government (m-Government). Further to that, it was found that citizens' ICT skills and attitude play a critical role in promoting the acceptance of m-Government.

A recent study by Sigwej and Pather [11] evaluated the effectiveness of citizen centric e-Government in Tanzania. The study aimed at proposing a framework for assessing citizen centric e-Government. Sigwej and Pather [11] noted that current frameworks and models for e-Government are not suitable for the African continent hence the need of a "more African-appropriate e-Government metrics" that are shaped by the "African environmental, cultural and contextual factors". A framework proposed by Sigwej and Pather [11] divided e-Government citizen satisfaction into two namely citizen expectations and facilitating conditions. Together, citizen expectations and facilitating conditions influence a citizen's intent to use e-Government service that prompts the use of e-Government services from which citizens derive satisfaction. It should be noted that citizen expectations of e-Government are shaped by the functionality of service and motivation to use service. The functionality of service is determined by performance, service and interoperability. Motivation to use service is determined by trust, ease of use, perceived benefits and internet skills. Facilitating conditions are shaped by an enabling infrastructure and government's preparedness. Factors contributing to enabling infrastructure include internet penetration, accessibility and multichannel. In addition, government preparedness is determined by coordination, commitments from top management, awareness, funding, government process change, towards a citizen-centric mode and legal issues.

3 Namibia's e-Government Initiatives

Namibia has documented a number of policy frameworks and various initiatives towards promoting e-Government. Among them include the Information Technology (IT) policy, the e-Government Policy, Web design standards and guidelines and the e-Government Strategic Action Plan (eGSAP) that is guiding e-Government initiatives

since the year 2014 to 2018. Namibia introduced its first e-Government Policy in 2005 at the auspices of the Millennium Declaration that seeks to address some socio-economic challenges faced by countries world over. Namibia's e-Government policy of 2005 focused on four areas namely "service delivery, citizen empowerment, marketing enhancement and development, and exposure and outreach" (Republic of Namibia [15, p. 16]).

Table 1. Strategic goals of e-GSAP for the Public Service [15, p. IV].

Strategic thrust area	Description and goals
Impact and visibility	Aims to achieve streamline and efficient Government operations, as well as improved online services by 2018
Collaboration and networking	Aims to achieve networked OMAs sharing Government resources (data, infrastructure, services and solutions) through a collaborative approach by 2018
Consistency and standardisation	Aims to achieve a homogeneous, standardised and consistent approach, interfaces and interactions for developing and implementing solutions and rendering of services by Government by 2016
Training, education and research	Aims to have: • A skilled and able workforce to render public services, and • Skilled and able citizens, communities and business participation in e-Government services
Foundational support	Aims to have well-founded laws, policies and institutions in place by 2015 to drive e-Government reform

An improved eGSAP that aims to guide e-Government initiatives from the year 2014 to 2018 was introduced and it brought in new changes on the 2005 e-Government policy. The current eGSAP policy is guided by a vision: *"To be a Leading Networked Government, providing Client-centred, Transparent, Affordable and Efficient Services to All."* Table 1 shows a summary of the key thrust areas that guide the eGSAP for 2014 to2018.

Despite the notable progressing on coming up with a policy for e-Government, Namibia is considered one of the countries that need to make progress in the designing and implementation of e-Government. The Republic of Namibia [15] report that, in terms of e-Government electronic readiness (e-readiness), Namibia is rated 2.2 out of 4. Namibia has e-Government supporting policies (rated 2.11 out of 4); with e-Government accessibility by different stakeholders rated 2.71 out of 4. However, Namibia does not seem to exploit different ICTs for e-Government purposes (rated 1.95 out of 4) and have a shortage of ICT skills (rated 2.21 out of 4) with a low willingness to use e-Government, rated 2.05. The United Nations' [16] e-Government Development Index (EGDI) rated Namibia 117th world-over after looking at the provision of online services, telecommunication connectivity and human capacity. However, Namibia is among the top ten in Africa in terms of e-Government readiness.

Findings by the United Nations [16] shows that Namibia's e-Government services are mainly (69%) focused on the provision of information to citizens with a few (32%) the government's websites making provisions for two-way communication such as downloading and submitting forms online. Tomlinson [17] made similar observations as he concluded that Namibia's government agencies websites are informational, interactive and rarely does one come across transaction-oriented websites. In particular to telecommunication connectivity, Namibia has few people with fixed broadband with only 2.91 per 100 inhabitants having broadband [16]. The majority of citizens have access to mobile phone communication with 107.79 having access per 100 inhabitants [16].

4 Methodology

The paper uses a literature review to argue for a citizen-centric model suitable for the Namibian government. The paper combines and renames some of factors of citizen centric e-Government that were proposed in the literature. The paper is therefore guided by the literature in identifying factors of citizen-centric. Table 2 shows a summary of studies that were considered to identify factors of citizen-centric e-Government. It should be noted that there is quite a few studies research in Africa that have focused on citizen centric e-Government [11].

Table 2. The identified factors of citizen-centric.

Factor	Category of factor	Source
Planning for citizen-centred design		[5]
Citizen information needs assessments		
ICTs availability, expertise and preference		
Citizen engagement		
Iterative evaluation for continual improvement		
Community based partnerships		
Politically based content and design		
Quality of information	Delivery of public services	[7]
e-Government service		
User-orientation		
Efficiency	Efficiency of public organizations	
Openness		
Equity	Achievement of socially desirable outcomes	
Self-development		
Trust		
Environment sustainability		

(*continued*)

Table 2. (*continued*)

Factor	Category of factor	Source
Access to ICTs		[2]
ICT skills		
Attitude		
Citizen expectations factors		[11]
Performance	Functionality of service	
Service		
Interoperability		
Trust	Motivation	
Ease of use		
Perceived benefits		
Internet skills		
Facilitating conditions		
Internet penetration	Enabling infrastructure	
Accessibility		
Multichannel		
Coordination	Government preparedness	
Commitments from top management		
Awareness		
Funding		
Government process change		
Towards a citizen-centric mode		
Legal issues		

5 The Proposed Model for Citizen-Centric e-Government

This study proposes a citizen-centric e-Government model that encompasses the e-Government design and implementation, and evaluation component. The study adopts an empirically evaluated public value driven citizen-centric e-Government evaluation framework proposed by Karunasena and Deng [7]. Karunasena and Deng's [7] framework is based on a thoroughly tested public value in e-Government model by Kearns that has since been applied in different countries and sectors of the economy such as the United Kingdom's electronic health initiatives. However, this study is of the view that a model that focuses on evaluating e-Government may not be adequate to address challenges faced by developing countries in Africa given that the majority of the countries' e-Government presence remains low. This occurrence is common in Namibia were there has been good e-Government frameworks with little progress when it comes to implementation. As such, this study incorporates the e-Government design and implementation component that could guide governments on the design factors that should be in place and create a platform for generating public value through e-Government. These design and implementation, and evaluation components are considered from a citizen-centric perspective.

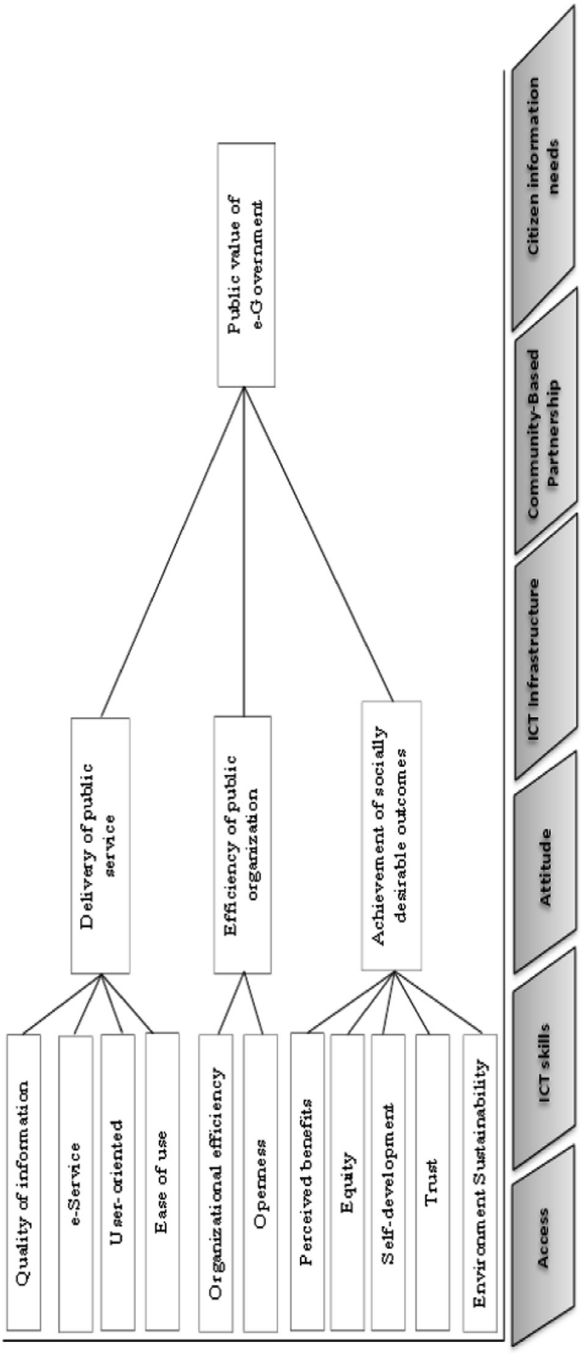

Fig. 1. The proposed model for citizen-centric e-Government for Namibia

5.1 The e-Government Design and Implementation Component

Figure 1 gives a summary of a model of e-Government design, implementation and evaluation suitable for Namibia. The model emphasises the fact that, if Namibia's e-Government is to be a success, it is important that the government centres the design and implementation of its e-Government around the accessibility of ICTs, technologies used by citizens and preferred languages; citizens' ICT skill development; look into partnering e-Government with community based partnerships like schools; ICT infrastructure and taking into account citizen's information needs. In addition, the resultant e-Government should be able to create public value in three ways namely delivery of public services, efficiency of public organizations and achievement of socially desirable outcomes.

Factors of e-Government Design and Implementation

Access to ICTs. Jaeger and Bertot [5] noted that governments should understand technology access capabilities of citizens if they are to develop systems that meet their needs. The Namibian e-Government platforms are mainly informational and not mobile phone compatible something that can limit their accessibility [15, 16]. This is a factor of great concern given that few (2.91 per 100 inhabitants) Namibians have fixed broadband connection compared to those who have access to mobile phones (107.79 per 100 inhabitants) [16]. Interestingly, the majority of citizens are now using mobile phones to access ICT services with 80% Namibians accessing the internet via mobile phones [18]. Further to that, issues pertaining to language and access to electricity are also critical factors that define the accessibility of e-Government services [19]. The study agrees with [19] who states that "policy design issues for e-Government need to consider measures or modes available for accessing information from e-Government systems, especially through the national information infrastructure." Similarly, [20] supports this idea by indicating that governments should look for ways to promote the access of e-Government through mobile phones given their wide acceptance even in countries with low internet penetration rates.

ICT Skills. A literature review by [2] noted that a shortage of ICT skills is one of the factors contributing to the digital divide. With Namibia moving towards a knowledge based economy in 2030, it is expected that ICT skills will play an important role. Van Deursen and Van Dijk (2010) in [5] found that such internet skills can include: "Operational Skills: The skills to operate computer and network hardware and software; Information Skills: The skills to search, select and process information in computer and network sources; and Strategic Skills: The capacities to use these sources as the means for specific goals and for the general goal of improving one's position in society". To affirm the importance of skills, the Republic of Namibia's [15] e-GSAP for the Public Service assets that Namibia aims to have a "skilled and able citizens, communities and business participation in e-Government services." However, one of the limitations of the e-GSAP in this regard is that the government's focus on training, education and research on ICTs is limited to civil servants with e-Government awareness programs being extended to citizens [15].

Community-Based Partnership. Making reference to the United States of America, [5] recommended that citizen centric e-Government has to integrate into community-based partnerships such as public libraries to increase its acceptance. On the other hand, [19] suggest that e-Government need to be understood within the African context and explore ways to make it relevant. This can be achieved by building social structures at community level that support ICTs for e-Government use. In Namibia, this could be facilitated through schools distributed across the country. Such an approach limits the practice of "the government 'off-loading' e-Government services, instructions and support to community organizations without coordinating, training, and involvement" something that is less likely to promote citizen-oriented services [5]. Training, education and research is one of the five key strategic areas as highlighted in the e-GSAP for the Public Service [15]. Through its Science, Technology, Engineering and Mathematics (STEM) programme, Namibia is promoting the growth of science and technology skills across the nation with primary and secondary schools expected to play a key role. Hence, the study suggests it would increase the acceptance of e-Government services if they are distributed through these educational institutions.

Citizen Information Needs. This study agrees with [5] that if e-Government is to be citizen centric, it is important that the designers of e-Government understand the citizens' information needs. Jaeger and Bertot [5] went on to state that "governments need to understand how citizens:

- Seek information on a particular topic or issues (strategy)
- Acquire information on a topic or issue (acquisition)
- Solicit expertise (source)
- Use of that information (application)"
- In addition, a study by [21] reports of changes in the way citizens search and consume information. She noted that a sizable amount of USA citizens no longer rely on accessing information from the government website, rather they make use of the social media. Thus, there seems to be a growing trust in information received via a friendship network such as Facebook [21]. Further to that the use of social media has gained popularity across different age groups, income groups, culture groups, gender and geographic location. Accordingly, the Namibian government need to design e-Government services that reach out to technologies used by its citizens for accessing and sharing information. A study by [18] found that Namibian internet users access internet over the phone for purposes of engaging on social media sites like Facebook.

ICT Infrastructure. This paper suggests that Namibia should look into the provision of an ICT infrastructure. This can include the provision ICT supporting infrastructure like electricity. Further to that, findings of few Namibians who have access to fixed broadband suggest a need to widen internet access to other regions. [11] note that for a successful citizen centric e-Government, there is a need for improving internet penetration, accessibility and increasing the use of multichannel. This is critical to Namibia given a low internet penetration in the rural areas that is further complicated by the lack of electricity in other sections [15]. It has already been noted that most rural residences are excluded from access and participation in e-Government due to a lack of

telecommunication connectivity for broadband despite the high numbers of mobile phone and mobile phone users [22].

Attitude. There is a growing belief that attitude is slowly becoming one of the important factors that determines ICT use [2]. Studies on e-Government have shown that attitude can be one of the determining factors of e-Government use. For example, [15] note that the willingness among various stakeholders to use ICTs can play an important role in the use of e-Government. Therefore, attitude is considered one of the factors that could influence the design and implementation of citizen centric e-Government. The study suggests that the government need to understand the attitude towards technology in its designing and implementation of e-Government. Such information can be critical in influence the citizens' attitude towards the use of ICTs in government.

5.2 Factors of e-Government Evaluation

The previous section discussed factors that could play a critical role in informing e-Government services designers and implementers on how to structure and distribute the respective e-Services. As indicated earlier, the study argues that maintaining an e-Government presence will not guarantee its success. Hence there is a need for e-Government citizen centric evaluation that could inform the extent of use as determined by the value e-Government creates to citizens. The study adopts and uses Karunasena and Deng's [7] criterion of e-Government public value creation. The next section discusses factors of e-Government evaluation.

Delivery of Public Services (DPS). Three factors play an important role in determining DPS. These include the quality of information, e-Services and user-orientation of e-Government [7]. For instance, studies have shown that citizens expect to find accurate information that is timely disseminated, expect to be able to perform two way transaction using simple e-Services and expect to use e-Government websites that are easy to remember [7, 20]. Shea and Garson (2010) in [21] even noted the need for "one-stop shopping or transaction-oriented websites". Mergel [21] went on to recommend real-time two way information communication between government and citizens via e-Government. As indicated earlier, Namibia's current e-Government is characterised with static information that need to be revamped if they are to deliver public service to the citizens. The Republic of Namibia's [15] impact and visibility, one of the strategic objectives in the e-GSAP complement the need for citizen-centric service delivery. Issues cited include one-stop shop portals, delivery of timely and accurate information. Further to that, a user's perception on the e-Government's ease of use can play a critical role in evaluating the extent to which they are citizen-centred.

The Efficiency of Public Organizations (EPO). [7] found that improving the access of ICT infrastructure that focuses on enhancing public operations a key element to the generation of public value. It was also noted that equipping public organisation employees with ICT skills and re-engineering public organisation business processes around principles of citizen centric adding to public value. However, it is important to realise that government's initiatives of using ICTs to save money by cutting employees

is not considered as creating public value [7]. Hence, it can be suggested that Namibia look into these critical factors and improve its service delivery using e-Government. For instance, the government can align its e-Government programs with grassroots level social activities like the traditional approaches to governance participation such as the regularly held indaba, "a council or conference for deliberations" [4].

Achievement of Socially Desirable Outcomes (ASO). Research findings by [7] suggest that the government can use e-Government and create public value to citizens by meeting their social desirable outcomes. Social desirable can differ in respect to the country in question. In reference to Sri Lanka, it was noted that citizens value education such as electronic content with "children education low cost ICT training, applications that help to develop social and network skills, and availability of resources to develop the ICT skills of citizens" [7]. In addition, citizens show to value government trust, privacy of their sensitive information in e-Government systems and the respect of law. Similarly, Namibia can use e-Government to advance social desirable goals such as those in training, education and research, and other major government reform programs such as the Harambe Prosperity Plan. Research findings by [11] suggest the perceived benefits to be derived from using e-Government can also play an influential role among Namibians.

6 Conclusion

The study motivates for citizen-centric e-Government. It uses public reform theories to justify its view for generating public value through e-Government. A literature review on citizen-centric e-Government was conducted. Using the literature, the study proposed a model of citizen-centric e-Government that could be suitable for Namibia. The study argues that, while it is important to evaluate the extent or effectiveness of e-Government's citizen-centric, it is also important to give government guidance on important factors that need to be looked into when designing and implementing e-Government. A literature review has shown that governments' e-Government implementations are often not tailor made to align with technologies used by citizens. Accordingly, the proposed model gives an outline for factors that are critical in e-Government designing and implementation, and evaluation. The study agrees with the current state of literature that suggests a need to evaluate the extent to which an e-Government platform is citizen-centric.

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