



Paper #2: Improving Government service delivery through e-Service

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Abstract

E-Government has demonstrated to be a critical lever for achieving accountability, effectiveness, inclusion and responsiveness in the provision of e-Services. In addition, there are a plethora of contextual and global benefits that can be harnessed when government departments provide e-Services such as a significant reduction in the cost of public services. With the emergence of the Covid-19 which has disrupted traditional work and service provision norms, e-Government presents itself as a conceptual and practical basis for the continued provision of competent public service realisation through digital platforms anywhere and anytime. E-Government has also emerged as a perfect platform for achieving some of the sustainable development goals (SDGs). Namibia has already done some substantial work towards the eventual realisation of the full array of e-Government promises – what is needed now is to amalgamate these efforts and systems into one information ecosystem. This paper provides insights into how e-Government can be positioned in the context of Namibia in order not to miss out on perceived e-Service benefits. It is hoped that if Namibia were to overcome a myriad of contextual challenges in the design and implementation of e-Government systems, a lean public service delivery system can be realised.

1. Introduction

1. **The Covid-19 pandemic pushed humanity to the edge by forcing them to technologically innovate in order to achieve desired levels of productivity and maintain some form of life normalcy.** National lockdowns world over, Namibia inclusive, have ensured that individuals adapt their ways of doing things and speedily adopt the different emerging technologies as interaction platforms and as enablers of work (Maritz, 2020). Despite the negative impact of the Covid-19, governments still need to provide public services at the expected levels of service quality. This is where e-Government, which enables government departments to provide e-Services, comes in. Namibia has been implementing e-Government for over two decades although the rate of adoption by individual citizens and businesses is still comparatively low.
2. **E-Services have a myriad of advantages.** One of the key advantages is the promise for improved provision of information to individuals. Citizens and businesses are now able to universally access information and be informed on many aspects of governance through e-Services. An informed citizenry is a precursor to a productive and empowered population which can positively contribute to the growth of the economy. Without information, people are not aware of many opportunities that the economy has to offer (Kearns, 2004) and are therefore excluded from effective economic participation. E-Services enable citizens to apply for government services using multiple technology platforms and therefore not expected to physically visit government offices. In advanced e-Government solutions, the private sector is able to use e-Services to interact or do business with the government.
3. **Realising e-Government is not easy and calls for a sustained commitment and continued innovation from different stakeholders.** The implementation of e-Government projects all over the world has shown that it takes a considerable level of investment (financial resources, citizen and government agencies' commitment, innovative ideas for continued adaptation and evolution given continuous changes, among others). For example, since 2012 Botswana has spent billions of Pula to develop e-Government although not a significant e-Government stature has been reached (Samboma, 2019). Other countries such as South Africa and Mauritius have been providing e-Services to its citizens for over two decades having invested substantially and have achieved relatively higher levels of e-Government development. It is clear that e-Government is not a once-off project but one that spans decades before a mature

development level can be achieved. It is a long road that needs all stakeholders to exercise patience and persistence in order to overcome the twists and turns during the design and implementation cycles. African countries such as Namibia are encouraged to take an incremental approach to achieve meaningful e-Government paying attention to the context in which it is implemented.

4. **Since e-Government has proved to be a multi-dimensional phenomenon, it is important to involve many players such as the private sector in designing and implementing its different facets.** This should be coupled with a client-engagement strategy so that the would-be e-Government consumers are involved in the design processes. Many designs of e-Government have focused on technology leaving out the other equally important factors. Provision of adaptive and sustainable e-Services need not entirely focus on technology but also on the people and systems that bind the whole public services sector together. Technology is the key enabler and platform upon which e-Services are delivered. Any long-lasting e-Government development strategy needs to be people-centric and one that carefully considers the context in which e-Government is going to be implemented.

2. Background

5. Understanding the factors responsible for the successful implementation of e-Services requires comprehending the contextual nuances that may be at play in an area in which e-Government is implemented. Understanding the context is likely to lead to appreciating the likely impact of e-Government in line with public sector modernisation and efficiency efforts.
6. From its original conceptualization of New Public Management, e-Government has been moving towards the concept of Public Value Management (PVM) which is focused on benefit realization of e-Government projects towards the realisation of PVM, the scope of e-Government has been enlarged: it can intertwine with almost all facets of life: from healthcare to intelligent transport systems, smart cities, democracy and/or economic inclusiveness (Sharma, Guttoo & Ogra, 2014). In the context of Namibia, e-Government has focussed on the provision of public e-Services. The different other variants of e-Government solutions are yet to be realised.

7. **In many parts of the world, it is evident that e-Government has easily been accepted contrary to African and other developing world contexts.** Why is it so? In many instances, many of the corrupt government officials have deliberately moved to block meaningful development of e-Government. This has robbed many of the African people from benefiting from e-Government innovations which are mostly presented as means to achieve social good. In many parts of the world, e-Government has been used to address the social or economic quagmires. For example, in India e-Government was integrated with land administration systems with a view of encouraging transparent land administration processes. Land administration was very complicated with huge pieces of land exchanging hands illegitimately. In Georgia, massive corruption in government deals and procurement processes made citizens lose confidence in government institutions. In both India and Georgia, the introduction of blockchain technology meant that government business processes left an audit trail which increased confidence and trust levels on government processes by the citizens.
8. **Some of the most common e-Services emanating from a well-developed e-Government project include:** e-Customs (using IT to manage custom information (*customs declarations, custom tariffs and duties, among others*)); e-Tax (allows citizens and businesses to accomplish the filing of taxes using IT platforms); e-Licensing (applying for a license online and being able to receive it online without physically visiting a government department); e-Procurement (using IT integrated platforms to order and purchase goods and services online). The emergence and realisation of e-Service innovations has seen many African countries join the bandwagon towards realising public service excellence. For example, in South Africa payment of government services such as municipal dues, taxes, etc. have been optimized using user-friendly mobile based e-Payment systems.
9. **The implementation of e-Services is partly motivated by the desire to increase the efficiency of public services and reduce unnecessary costs that government departments incur.** Efficiency in the e-Services can only be achieved if there is a good degree of integration and interoperability between/among disparate systems to facilitate electronic data interchange (EDI). When an advanced level of e-Government maturity is reached in Namibia, it will be important to consider ways to integrate e-Government systems with the public sector so that there could be enhanced participation in the governance processes and enhanced information exchange between public and private sectors. Upon reaching this stage, there will be cross-organisational process and

information systems integration culminating into open and transparent information ecosystems in public-private sector interactions (Kachwamba & Makombe, 2011). Systems integration is very important because it contributes to avoiding the duplication of resources across various ministries and departments. In line with the desire for integrated government systems, South Korea implemented the Online Procedures Enhancement for Civil Applications (OPEN) which integrated government procedures. The sole purpose was to reduce public service inefficiencies and mitigate corruption. Another e-Government innovation designed for coupling with the OPEN system was the Korea ON-line E-Procurement System (KONEPS). Namibia will need to be already thinking of how the disparate systems in the public sector can be integrated into one informational space.

3. ICT Initiatives in Namibia's Public Sector

10. **It is evident that the desire to provide a plethora of e-Services by the Government of Namibia was born more than two decades ago.** The institutional, legal and regulatory framework is already established to some appreciable extent. What is needed to be done going forward is to align the different initiatives to the contextual nuances obtaining on the ground.

3.1 Initiatives

11. **There is need for Namibia to develop context-aware policies that create an enabling environment for e-Services and also create a conducive environment for emerging forms of e-Government.** For example, as early as 2011 South Africa had ensured that there was a requisite institutional, legal and regulatory framework to nurture the e-Government agenda (Naidoo, 2012). In the context of Namibia, adequate institutional arrangements exist to realize the promise of e-Government. The e-Government Policy of Namibia posits that the nation wants to have government departments adequately networked so that client-centered, transparent, cost-effective and efficient public services are provided to all. The good side of Namibia's policy framework is that e-Government initiatives are embedded within the Vision 2030 and the Fifth National Development Plan (NDP5). The NDP5 (2017 – 2022) has clear desired outcomes to the effect that by 2022, Namibia will have achieved a lot with regards to universal access to information, affordable communication and technology infrastructure and services (Maritz, 2020). Other policy frameworks include the Revised IT Policy for the Public Service (2017), the Overarching ICT Policy 2009 (OICTP 2009) and the

Universal Service and Access Policy (2013). There are other targeted initiatives which acted as the backbone for e-Government development, viz (a) *The Namibia Accelerator Lab – towards location of the SDGs and promotion of rapid adoption of tech innovations*; and (b) *the e-Government Strategic Action Plan of the Public Service of Namibia (2014–2018)*.

12. Several principles and actualities are on the ground. Some of the prominent ones include: The launch of the Namibia e-Governance Policy in 2005; committed implementation of e-Government likely to lead to better e-Governance, transparency and accountability; bringing government closer to the people and thereby promoting inclusiveness; among others.
13. **The premise for e-Government in Namibia was already set by the development of a public-sector dedicated IT Policy by the Public Service Committee on Information Technology (PSCOIT).** Each of the Offices, Ministries and Agencies (OMAs) is responsible for the management and budgeting of their own IT projects. The Office of the President, and specifically the Department of Public Service Information Technology Management (DPSITM) carried an e-Readiness survey to determine the state of readiness of OMAs to move towards the provision of e-Services. The survey revealed that a majority of OMAs do not have the capacity to share information effectively through integrated information systems (Mahunnah, 2017). Correspondingly, there was need for a deliberate policy for the OMAs to push them to get their houses in order in as far as IT infrastructure connectedness to enable the highly integrated and interoperable systems is concerned. These systems would in turn culminate into seamless sharing of data among OMAs.
14. **Several ICT initiatives in the different areas of the economy are being implemented in Namibia to advance technological integration.** Some of the key interventions include TECH/NA! Implemented in the education sector. Xnet (national research network), integrated eHealth system, and the ICT Centre of Excellence. There are also other ICT interventions such as the Scan-ICT Programme and the 081Every1 project. Specifically, to promote e-Services the e-Government Strategic Action Plan (eGSAP) is dedicated to promote the promotion of technology use in the public sector since 2011. Given the foregoing, it is clear that Namibia has been steadily investing in developing e-Government capacity.

3.2 Achieving sustainable user take-up

15. **The general lack of acceptance and continued usage by citizens and businesses, many e-Government projects fail as they miss out on their intended purposes.** In many instances, e-Services are not taken up adequately by would-be users because of lack of awareness, lack of trust, limited access to e-Services, usability issues, security concerns, inadequate funding, lack of adequate and appropriate skills to innovate e-Government solutions, resistance to change, and lack of context-informed design and implementation strategies and frameworks (Weerakkody, Baire & Choudrie, 2006).

16. **Five key challenges need to be overcome to stand realistic chance of implementing successful e-Government projects which would guarantee adequate user uptake:** citizen centricity (clear understanding of customers' characteristics and their involvement in the design and implementation processes); how to lift the veil and break the silo walls towards connected government); how to build capacity to stand a chance of delivering results; realizing the benefits of e-Government by common businesses and individuals; and having the capacity to continuously innovate given the evolving technology design platforms. Among these, the key challenge has been enshrining trust into individuals so that they can access government information and services through online platforms. Namibia will need to come up with strategic programmes that encourage the nurturing of trust among the would-be e-Government users (Sharma, Guttoo & Ogra, 2014).

17. **Contemporary e-Government should not leave anyone behind regardless of the tech platform they want to access e-Services from.** This entails that e-Services should be provided to consumers using multichannel service interfaces to accord citizens and businesses an opportunity to access services pervasively and comfortably. Further, platform/channel diversity is important because it allows e-Services consumers to have a choice on which channel to use depending on their needs at a given time. A key challenge to be addressed in this regard is the need to ensure that despite the channel heterogeneity, e-Service consumers are able to access desired and comparable level of quality in the services delivered (Weerakkody, Baire & Choudrie, 2006). E-Government consumers should be able to access e-Services using television, desktop or laptop computers, mobile phones, etc. A well-design e-Government project should also allow e-Services to be accessed using the known traditional platforms to assure us that e-Government implementation does not translate into e-Xclusion (Sharma, Gutto & Ogra,

2014). Namibia will need to carefully consider how to design e-Services so that that they are accessed using heterogeneous channels.

18. Many government employees and citizens are not aware of the technology solutions that have been designed by the government departments (Mahunnah, 2017). Lack of awareness translates into unintentional absconding from engaging in e-Government applications. Targeted adverts can be used in Namibia to raise awareness of available e-Services. In advertising available e-Services, government departments may further consider using the USSD based messaging platforms to conveniently reach the citizens.

19. E-Government is considered within the confines of the conceptualization of 'public value'. Public value is achieved when there is perception and realization of high quality services. Positive perception is achieved by reliability and availability of public services, level of satisfaction with e-Services, and the importance of the services rendered. The second source of public value is trust in public institutions. Trust in e-Services is gained by the behaviour of public sector establishment over a period of time. The third source of public value is the degree to which the expected or desired public services are achieved by e-Service platforms (Kearns, 2004). In order for Namibia to benefit from the potential of e-Services, it needs to consider the following:

- (i) Use a customer-centric approach where both citizens and the private are included in the design efforts for e-Services. This approach demands that there is clear insight about who the consumers of e-Services would be once deployed;
- (ii) Use a stepwise approach to progressively introduce e-Services into the public service value chains which have a chance of being easily used by the citizens;
- (iii) Reduce the cost of public service provision through the automation of mundane tasks in the public service business value chains;
- (iv) Assure the citizens on the security and effectiveness of e-Services to increase public trust and buy-in;
- (v) Provide e-Services accessible on multichannel platforms towards achieving anywhere, anytime access to government information and services;
- (vi) Increase awareness and satisfaction levels by enshrining a resume of continued engagement with the citizens;

- (vii) Have a dedicated budget and team to drive e-Government project design and implementation;
- (viii) Build technical and managerial capacity among the public sector employees’.

20. **Considering the user at the centre of the e-Government design efforts is critically important.** Without careful considering of user-centricity, e-Service in government business cannot achieve its main targets. It is therefore expected that the main driver in the design of e-Government solutions should be the individual users and not technology. The focus on the user moves the design of e-Service modules away from technology. Technology is just but an enabler and a platform upon which innovative e-Government solutions are designed.

3.3 E-Government organisational structure

21. **For a long time, the public service model in Namibia has been devoid of massive technology.** Mahunnah (2017) posits that the key challenges for e-Government implementation in Namibia include obsolete ICT infrastructure and poor financial resources, among others. Contemporary provision of public services uses the e-Services model where a majority of services are offered using different technology platforms. The provision of e-Services demands that public organisations undergo some form of organizational transformation and repositioning of the overall public service structure to accommodate increased use of technology. The envisaged transformation is not easy and will need strategic orientation in order to be accomplished.

22. **Namibia will need to review its policies to ensure that the institutional framework is on point to accommodate the slight changes in public service provision brought about upon the introduction of e-Government.** This may entail changing the structure, business processes, service platforms, and culture of existing organisations in Namibia (Maritz, 2020). For e-Services to be connected so that logical and interrelated service is offered, a government-wide enterprise infrastructure will need to be in place. The infrastructure will be part of the baseline technology infrastructure needed to achieve contemporary e-Government. In the development of enterprise architecture in the Namibian context, communication and collaboration, roles and responsibilities, technical know-how, and organisational culture are some of the key factors that will need to be considered (Shaanika & Iyamu, 2018).

- 23. In line with the quest for a government enterprise infrastructure, Namibia will need to consider the different levels of desired information integration in the public sector.** Data and information integration in the context of e-Government is an important attribute to realizing a well-connected public service information space. There are many advantages attributed to data integration in the public sector. First, it reduces institutional fragmentation and brings all the public service information in one informational ecosystem. Second, it enables easy sharing of knowledge created in public business processes over time. Thirdly, it promotes openness and transparency in the e-Services. Integration further promotes the establishment of an information ecosystem where queries from e-Government consumers are processed in less time therefore adding to the levels of efficiency in the public sector (Weerakkody, Baire & Choudrie, 2006). Many countries around the world have designed e-Government Interoperability Frameworks (eGIFs) to articulate guiding principles upon which e-Government integration efforts are hinged. For example, in attempting to achieve a seamless information integration in the e-Government system, the UAE government implemented the Abu Dhabi Systems and Information Centre (ADSIC) which acts as a one-stop shop for information. The ADSIC is a multi-channel system which enables information seekers to access government information using mobile phones, SMS, a dedicated mobile app, live chat, etc.
- 24. Interoperability allows different information systems to exchange data, exchange meaning so that two or more machines understand the information exchanged the same;** and process agreement depicting agreements on how the machines need to act on the information exchanged (Mahunnah (2017)). Namibia should consider coming up with the national e-Government Interoperability Framework to meaningfully achieve integration as it will act as a reference model for government departments as the e-GIF design e-Service solutions. This will make it possible to standardize the concepts, norms and standards, guidelines, vocabularies thereby setting the tone for e-Government implementation in Namibia (Mahunnah, 2017).
- 25. What to do to achieve responsive and sustainable e-Government?** Although not mutually exhaustive, the following are some of the things that can be done to increase the success for the provision of e-Services in Namibia:
- (i) E-Government standards – given the Namibian context, it is important to contextualise and institutionalise the national e-Government standards that all government departments will be expected to follow. Some important standards may include: QoS and Service Level Agreements; Interoperability Framework,

Information Presentation and Access Procedures; Business Process manuals; Standard Operating Procedure manuals; etc. The standards will ensure that there is consistency in the execution of public business processes.

- (ii) Process re-engineering for increased efficiencies and computerisation of a majority of the public businesses both front and back-end – endeavour to provide multi-channel streams for the delivery of public services where both traditional and electronic service modules are available to citizens. This is important to achieve inclusiveness.
- (iii) Marketing and awareness of e-Government solutions – citizens and businesses need to be aware of the different platforms which can be used to access public e-Services to encourage universal usage. One effective way of creating awareness is through door-to-door roadshows.
- (iv) Namibia will need to consider dedicated initiatives to create tech incubators where a sizeable number of the youth are upskilled to be at the end of the innovation value chains.
- (v) Encourage continued innovation and revitalisation of the public sector – through sustained research activities, the Namibian e-Government project can keep abreast with emerging technological innovations and best practices on how to design and implement e-Government project.
- (vi) Locate e-Government within the broader vision of the Fourth Industrial Revolution (4IR). Namibia assembled a task force in 2021 to drive this agenda. Contemporary e-Government solutions need to be built on top of 4IR technological orientations.
- (vii) There is need for carefully-thought incentive systems which reward government departments who have progressively migrated many of their business processes onto technology platforms.
- (viii) Continuous training and research – to ensure the Namibia public sector has a competent workforce able to innovate new technology platforms and systems as per evolving use requirements.
- (ix) Strong leadership is needed to ensure that the different support initiatives to provide e-Services is realised. Strictly, there needs to be local and global leaderships to advance the e-Government agenda. The global leadership provides the coordination of the different e-Government efforts.
- (x) Establishment of the DNA database so that citizens are profiled from birth and linked to the different e-Government systems (Maritz, 2020).

3.4 Assessment of benefits realisation of e-Government projects

- 26. E-Government projects are generally capital projects which cost substantial amounts of money.** Worth mentioning that e-Government projects cost millions of US dollars (Kertesz, 2003). Before engaging in e-Government, governments need to be convinced that the return on investment is substantial. In funding e-Government projects other projects that could have been funded by the government and developmental partners get the knock-in effect. This opportunity cost is immense and it is therefore expected that the high rate of e-Government project failure will need to be reduced. In order to mitigate the failure rate of e-Government projects, it is important to ensure that the anticipated benefits are carefully considered with regards on how they can be appropriately and optimally harnessed. One way to do that is to consider benefit realization expectation right at the conceptualization of the project (Chih & Zwikael, 2013).
- 27. Many e-Government assessment methodologies that exist are influenced by the context in which e-Government is implemented.** There is no global e-Government development measurement criteria as the context in which it is applied dictates what each e-Government project goes out to achieve (Kearns, 2004). When evaluating e-Government, in many cases, the things that are measured are not the ones that ought to be measured therefore missing out on the true value of e-Government. A sizeable number of e-Government assessment methodologies have focussed on monetary benefits such as cost savings neglecting the intangible benefits which are crucial to e-Government implementation. Comprehensive e-Government assessment methodologies should include both monetary and the measurement of the expected public good brought about by the implementation of e-Government (Mates, Lechner, Rieger & Pěkna, 2013). Because of the significant costs associated with e-Government, although many of the e-Government benefits are intangible, it is important to have a feel of what its cost-benefit is. The cost-benefit analysis is a critical component of the business case which articulates the opportunity cost when e-Government projects are conceived.
- 28. In many instances, researchers and practitioners have overstated the benefits that e-Government brings on the table.** Many times the significant cost incurred in the set-up and maintenance of e-Government is usually ignored. The design, set up and implementation of e-Government is an extremely expensive undertaking and governments embarking on the journey of digitisation of public service need to clearly understand that. It is important to approach the expectations on anticipated benefits with caution because the reality is that e-Government is implemented in different contextual

settings with varying challenges (Ying-Yi Chih, Ofer Zwikael, 2013). If implemented in an environment with acute challenges, the level of benefits amassed from e-Government implementation is diminished. Namibia is a third world country which, as expected, has not completely alleviated its challenges with regards to ICT infrastructure, ICT literature skills, information governance, etc. realistically, coming up with interventional remedies to overcome the contextual challenges is a first step towards realistic harnessing of e-Government benefits.

29. **Since e-Government is a multi-dimensional phenomenon, it makes sense that its evaluation needs to encompass multi-weighted methods which incorporate both tangible and intangible benefits.** Different objectives are weighted according to the priorities in the context in which e-Government is implemented. Using the concept of 'opportunity cost' it is possible to assess the value of the e-Government solutions on the overall governance objectives (Kachwamba & Makombe, 2011). It does not make absolute sense to measure the value of e-Government in monetary terms only using such metrics as Net Present Value (NPV), Payback Period or cost-benefit ratio because the value of e-Services trickles to all business processes of the government either directly or indirectly. Because of the concept of quantification quandary, many possible benefits for introducing e-Services such as 'increased satisfaction on the part of citizens in accessing public services anywhere anytime' can be directly quantified (Kachwamba & Makombe, 2011).
30. **Many e-Government projects are now using the benefit-oriented project management approaches and *Projects IN Controlled Environments* 'PRINCE2' where benefit realization is** a critical component for establishing the business case and as a key component for project review. Benefit realization is not out-put focused but a balanced measured approach where the overall good of a project is considered (Chih & Zwikael, 2013).
31. **Cost benefit analysis has focused on understanding both once-off and recurrent costs. Once-off costs can be capital costs such as ICT infrastructure (software and hardware and corresponding networking requirements).** Recurrent costs can be intermittent costs incurred at certain intervals in the e-Government implementation cycle Kertesz (2003). The cost-benefit analysis is done by considering a set of elements as follows:

- (i) **Design phase:** costs related to business case design, internal capacity investments, business process redesign, training for key e-Government workers.
- (ii) **Implementation phase:** Costs for building and roll-out of e-Service platforms (both back-end and front-end systems).
- (iii) **Operational costs:** E-Service platform administration and maintenance costs. Also related to this cost is the organization work process restructuring, marketing and awareness campaigns, etc.
- (iv) **Benefits:** Perceived and actual benefits to the government departments (increase in efficiency, reduction in cost with regard to providing e-Service, reduce personnel, reduce crowdedness in the government offices, make it possible for citizens to pervasively access e-Services, allow development of new innovative services, etc.)
 - (a) **Benefits to the consumers** – citizens and businesses. Allow citizens to access e-Services anywhere and at any time, allow realization of service-service, reduce the cost to access e-Services, among others.
 - (b) **Mutual benefits of e-Services** – there will be increased levels of accountability and transparency in the public sector, more and better interaction between the consumer and the government culminating into improved relationship and trust, promote inter-agency interaction and co-operation, reduce bureaucracy, among others.

32. **Given the huge costs in design and the higher likelihood of failure of e-Government projects with regards to setting up and implementation, Namibia needs to consider the attributes that should go into the Benefits Realization Management (BRM) strategy.** At the core of the BRM strategy is the implementation of a cost-benefit analysis process of the proposed tech innovation given the context in which the innovation is implemented. A carefully designed BRM strategy starts with the understanding of the planned outcomes of the use of ICTs, linking them to overall strategic business objectives with a view to achieve a higher cost/benefit ratio. The BRM strategy also considers monitoring costs of implementation and evaluation of the overall achievements. The BRM will aim to improve the acceptance, adoption and usage of e-Services by the Namibian citizens.



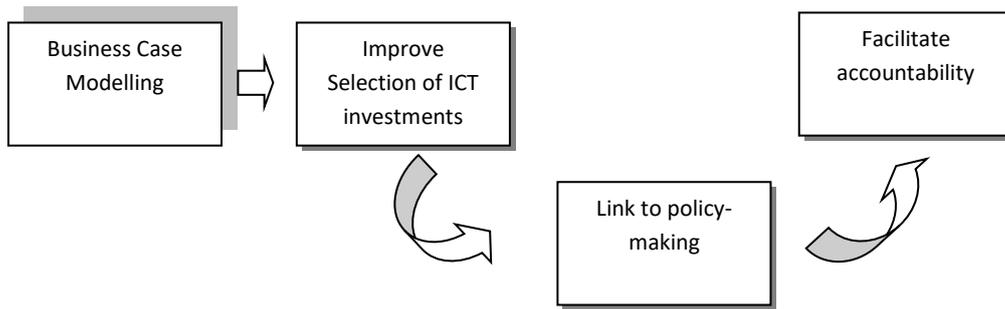


FIGURE 1: Modules for e-Government Benefit Realisation

It is important to note that benefit realization planning and analysis occurs at whole stages of the project lifecycle.

- (i) **Step 1:** Business case modeling – clear understanding of the project objectives, overall expected deliverables, risks involved and the value of project. A clear plan of the benefits realization schedule needs to be in place. For e-Government projects, there is need to include expected changes that need to be implemented and their associated costs.
- (ii) **Step 2:** Monitoring project implementation towards striking a balance between costs and benefits.
- (iii) **Step 3:** Evaluating if the project has been done within the benefit and cost boundaries.

4. Current and Future Prospects

33. **Namibia needs to ensure that there is appropriate underlying ICT infrastructure that can connect government departments and the citizens.** Reference to the already conducted e-Readiness assessment can help understand the state of ICT infrastructure in place to support desired e-Services. Based on e-Government developments elsewhere, the Namibian e-Government development trajectory needs to consider aspects of e-Government functionalities as achieved in the world elsewhere:

- (i) Utilisation of blockchain-based IT applications which leave an audit trail and therefore reduces the incidences of corruption in the public procurement processes. E-Procurement processes, such as the Pan-European Public Procurement On Line (PEPPOL) makes it possible to have efficient procurement processes which cost relatively less than traditional procurement processes.

- (ii) Digital identification of citizens, such as the EU e-ID STORK (Secure idenTity acrOss boRders linKed) and the Netherland's DigiD is critical for managing information regarding citizen information (Weerakkody, Baire & Choudrie, 2006).
- (iii) Government departments need to have e-Services with adequately integrated data systems such as the X-Road innovation in Romania. The X-Road presents itself as an interoperability innovation platform for data exchange within the different government departments. The use of the X-Road enables proper execution of queries where decision depends on drawing and analyzing information from multiple sources stored in different databases and information portals of public organisations (Weerakkody, Baire & Choudrie, 2006).
- (iv) Funding structure of e-Government: the government alone may not have adequate resources to fund and manage the different facets of e-Government. It is therefore important that there be considerable efforts in the Namibian context to practically explore the PPP and cloud-funding models with actors drawn from both internal and external environments. It is a given that efforts encouraging any form of integration between public and private enterprises will ultimately draw attention from the private sector partners (Naidoo, 2012).

34. With the fourth industrial revolution (4IR) emerging as both a conceptual and practical basis upon which e-Government is to be hinged, it is important to nurture the culture of innovation in the public service. Future e-Services are going to be accessed using intelligent and automatic application programme interfaces (APIs) where e-Content accessed will depend on the consumer profile. Incorporating the advanced innovations in Artificial Intelligence and blockchain, e-Government solutions are going to be both intelligent and automatic culminating into 4IR-based e-Government solutions. The emergence of 4IR-based e-Government has led to enhanced service delivery innovation unlocking opportunities never thought of barely a decade ago. Further, there is a possibility of realizing Open Governance which enhances enhanced levels of responsiveness, efficiencies and accountability.

35. The design of AI-augmented government needs to follow fundamental principles with reference to the context in which AI-augmented government is desired. Some of these are: ensure that citizen's input even at the grassroots level is considered to demystify unpalatable misconceptions of AI in government; ensure that the privacy dimensions of data and storage or sharing aspects are taken care of; instead of

reinventing the wheel, the AI e-Government system needs to be incrementally embedded or integrated onto traditional e-Government designs.

36. **In order to appropriately support the integration of AI into e-Government, requisite national physical IT infrastructure is desired (Wirtz & Weyerer 2019).** Although this is not a comprehensive technology stack to achieve automation and intelligence in the e-Government environment, it does articulate important aspects of some of the desired technologies. Figure 2 provides the basic technology attributes needed to achieve basic intelligence and automation in the e-Government environment.

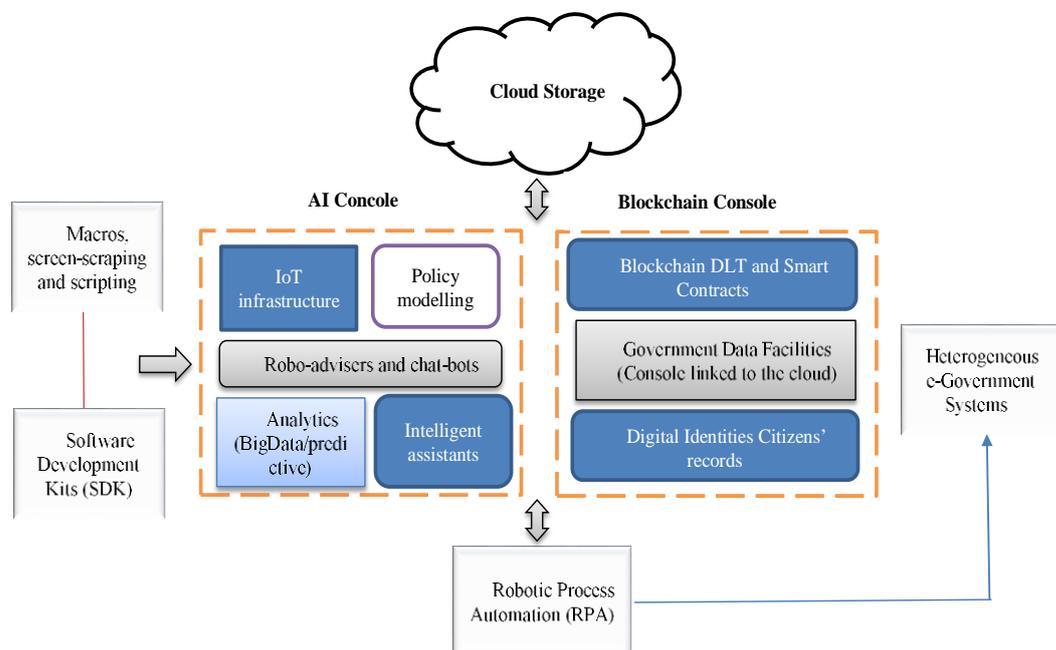


FIGURE 2: AI-Augmented government integrated modules (*author's own concept*)

37. **Six key modules are proposed: robotic process modules are technology innovations that allow the automatic dispensation of public services; the cloud storage console allows heterogeneous applications to simultaneously access the same data in order for government departments to provide an instantaneous service; the AI console provides articulation of key technologies needed to achieve a good degree of intelligence in the e-government services; the blockchain module enables the e-Government applications to be done using open systems so that there is enforced accountability in the system; and the Software Development Kit (SDK) providing**

sharable application development modules for programmers and developers to develop and include the contextual characteristics.

5. Conclusion

38. **This paper has interrogated the practical aspects of e-Government design and implementation in Namibia with a view to realising the many benefits that e-Government has to offer.** E-Government projects have been designed using different foci – many of the recent ones have been designed with a view to linking them to the aspirations of the SDGs.
39. **The success of e-Government projects is hinged on understanding the key contextual nuances that need to be considered into the design of e-Government solutions.** These nuances are then grouped into defined modules which are implemented in a stepwise approach. It is important that Namibia follow this step-by-step approach in designing its e-Government solutions to stand a chance to realise the perceived benefits.
40. **As articulated in this paper, there are so many contextual challenges that may limit the development of e-Government in Namibia.** Some people may argue that Namibia may not have the desired financial resources and technical expertise to effectively develop e-Government. However, it can be argued that sustainable e-Government development requires a step-by-step approach evolving from traditional e-Government development to the futuristic AI-enabled government. Namibia is slowly positioning itself to develop ICT capability given the assembling of the national 4IR committee.

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