# A Review of Critical Factors Impacting the Implementation of E-government in Developing Countries


Boitumelo Hlengiwe Mogale

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**COMPULSORY DECLARATION**

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signature: Boitumelo Hlengiwe Mogale Date: 13/03/2021

## ABSTRACT

A key challenge facing developing countries is the high failure rate of electronic government (e-government) programmes. Since its inception, e-government has been implemented globally with the aim that it will enhance the quality-of-service delivery, transform government's internal and external processes and make the public sector more effective and efficient. However, the majority of e-government initiatives have failed to meet their objectives, particularly in developing countries. Therefore, this research considers the factors facilitating and inhibiting the successful implementation of e-government in developing countries.

The methodology adopted for the thesis was a qualitative research approach. Secondary data was collected through a literature review of various sources, namely government publications, annual reports compiled by international development agencies and relevant books. To address the research question, I identified literature from journal articles with expertise in information systems such as the Electronic Journal for E-government.

The research findings indicate that e-government in developing countries is impacted by various infrastructural, financial, political, socio-economic, organisational and human related aspects. Some of these include the digital divide, resistance to change, limited ICT skills and a lack of robust regulatory frameworks. The study concludes that successful e-government does not solely rest on technology. Instead, developing countries need to understand the impact of the various local contextual factors. These are the fundamental aspects that must be considered during the strategic design of e-government initiatives to ensure they are appropriate for and relevant to local conditions.

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To my wonderful family and friends. Thank you for your unwavering support and encouragement throughout this journey.

Most importantly to God, all the honour and glory belong to You.

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## LIST OF ABBREVIATIONS

| | |
|---|---|
| AISI | African Information Society Initiative |
| ASPA | American Society for Public Administration |
| BPM | Business Process Management |
| EGDI | E-government Development Index |
| G2B | Government to Business |
| G2C | Government to Citizens |
| G2E | Government to Employees |
| G2G | Government to Government |
| GDP | Gross Domestic Product |
| HCI | Human Capacity Index |
| ICT | Information and Communication Technology |
| IMF | International Monetary Fund |
| LDCs | Least Developed Countries |
| LLDCs | Landlocked Developing Countries |
| OECD | Organisation for Economic Co-operation and Development |
| OSI | Online Services Index |
| PPR | Public Sector Process Rebuilding |
| SADC | Southern African Development Community |
| SDGs | Sustainable Development Goals |
| SIDS | Small Island Developing States |
| TII | Telecommunications Infrastructure Index |
| UN | United Nations |
| UNDESA | United Nations Department of Economic and Social Affairs |

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| UNDPEPA | United Nations Division for Public Economics and Public Administration |

# CHAPTER 1: INTRODUCTION

## 1.1 Introduction to e-government

Since the mid-1990s, many governments across the world have been implementing major technological initiatives in an effort to improve public administration and governing processes. According to the United Nations, ICTs and particularly the Internet are providing a new framework and countless opportunities for widespread economic, political, and social development (UNDESA, 2020). The ICT revolution has encouraged and facilitated changes in all aspects of daily life, transforming ways of working, the way in which we conduct personal relationships, business and the production and distribution of goods (Nath, 2017).

The widespread application of ICTs in the public sector has been through e-government initiatives. Countries across the world have embraced these initiatives based on the belief that when implemented successfully, e-government will enhance processes of governance and the delivery of basic public services at various levels of government (Palvia & Sharma, 2007; Singh, 2016). The OECD (2008) posits that e-government is one the primary tools which can potentially transform the structures, processes, and culture of government. Through the application of advanced digital and mobile services, e-government can lead to more effective service delivery, improved accessibility, and responsiveness to the needs of citizens, business and employees and increased public participation in governance matters (Nawafleh, et al., 2012; Karokola & Yngstrom, 2009). E-government is also believed to make institutions more open, transparent and accountable (UN-DPEPA; ASPA , 2002). In this regard, e-government is expected to transform both the internal and external workings of public administration (Singh, 2016). However, past research and country experiences have indicated that e-government implementation is not that simple and straightforward (infoDev/World Bank, 2009). In fact, like many other public administration reforms, e-government initiatives do not always achieve their objectives (Yetano, 2018).

Many scholars who have studied e-government believe it has the ability to transform the public sector, its management practices as wells as democratic processes. These are some of the reasons which have motivated countries to pursue e-government and has ultimately led to its spread across the world. In his seminal work on e-government progress in developing countries, Heeks (2003:3) concluded that the majority of initiatives had ended in either total or partial failure due to what he called “design-reality” gaps. This refers to the difference in the current realities of an implementing country and the design of the e-government project. Over the years, many scholars have cited and corroborated Heeks’ findings, noting that although some progress has been made, developing countries generally still face many implementation challenges (Samsor, 2020; Nawafleh, et al., 2012; Gunawong & Gao, 2017; Guma, 2013; Amanbek, et al., 2020). At present, the integration of ICT in public administration remains uneven and although some progress has been made, many initiatives have enjoyed little success or have deteriorated over the years. Ultimately, the full spectrum of e-government benefits has largely not been realised.

The differences in the status of e-government development across the world suggest that successful implementation is not always guaranteed. Rather, it is influenced by the interaction of a variety of factors which tend to differ from one country context to another. Aladwani (2016) makes the argument that the prevalence of corruption restricts the morale and governance capabilities necessary for e-government success.  On the other hand, AlSuwaidi and Rajan (2013) consider a lack of a thoroughly researched e-government strategy as one of the likely factors for failed initiatives in developing countries. Another commonly cited barrier is the digital divide which describes the social inequality between those who do and do not have access to ICTs, particularly the Internet. This disparity limits the ability of certain individuals or groups to benefit from digital service and ultimately, participate fully in public life (Norris, 2001; Ebbers, et al., 2016). The various scholarly opinions indicate that there are a variety of critical factors which can potentially influence how well e-government is implemented and institutionalised throughout government agencies. Although all countries experience challenges when implementing e-government, Bwalya and Mutula (2016) find that developing countries are more susceptible to these barriers when compared to developed countries. E-government success is highly dependent

on the specific context it is implemented in and the different factors that are at play in the department, country, or region.

Despite the numerous contributing and inhibiting factors, e-government continues to spread throughout the world with the promise of being a leading catalyst for public sector reform and development. Generally, when successful, the expectation is that government processes will be transformed to become more effective and efficient and e-government services will be readily available and utilised by all stakeholders (Ziemba, et al., 2015). Over the years, e-government has become a major priority for countries across the world. This can be credited to advocacy from international development agencies such as the World Bank and the United Nations (UN) who have promoted the use of ICTs in government. Apart from e-government, the UN has generally identified science, technology and innovation as key factors that can support the achievement of the 2030 Agenda and Sustainable Development Goals (SDGs). Development agencies have also played a significant role in financing many e-government projects in low-income countries. Together, these actions have led to increased spending towards ICT infrastructure and the fast tracking of e-government programmes to support public sector transformation. While technology plays a critical role in this strategy, the success of e-government appears to be more nuanced. More than often, it is dependent on a combination of various political, organisational, cultural factors rather technology alone (infoDev/World Bank, 2009; Ziemba, et al., 2015).

Although e-government has received plenty of attention from scholars and practitioners, it still has no design framework or model that is globally agreed on and can be applied across various country settings. This vacuum therefore calls for each e-government design to be informed by the individual local contexts of the implementing country. By doing so, experts will take into account the prevailing legal, institutional and regulatory frameworks of a country and other factors like access to ICT infrastructure, organisational and management issues and national culture which together influence whether or not programme objectives are met (Alcaide Muñoz & Rodríguez Bolívar, 2018; Bwalya & Mutula, 2016). Understanding these contextual factors is paramount to designing the most appropriate e-government model in order to ensure that it is not only compatible but relevant to local conditions. This is

understandably a demanding and time-consuming exercise but when carried out thoughtfully it allows governments to identify and provide mitigation solutions for any shortcomings. Ultimately, it reduces the potential for e-government project failures.

Therefore, the main priority of this thesis is to illustrate that ICT interventions in government alone are not an end. However, e-government should be approached as a potential enabler of change, democracy and inclusive governance. In order to take full advantage of this potential, e-government development must be grounded in the reality of the capabilities and challenges of the country or department it is introduced to. This calls for the careful evaluation of each individual environment in which e-government is implemented in order to gain an understanding of the key organisational, institutional, and individual factors which can potentially impact how well it develops (Bwalya, 2018). As a result, through this thesis I aim to identify some of the primary reasons which have led to the successful implementation of e-government in some areas as well some the factors which have acted as barriers.

I argue that e-government cannot be implemented in a vacuum. Successful e-government development is not merely about the purchase and application of ICT in government. In order for e-government to fully deliver on its promise for radical public administration transformation, every country needs to develop an implementation strategy that takes into account various contextual factors which can either act as a hinderance or facilitator for success.

## 1.2 Previous studies

Many scholars have dedicated their time documenting the numerous benefits and potential of e-government (Singh, 2016; Palvia & Sharma, 2007 Ndou, 2004; Heeks, 1999; Castelnovo & Simonetta, 2008). Sánchez-Ortiz, et al (2018) advocate for an ontology-based approach to analysing e-government in different country settings. They believe that by supporting collaborative research between developed and developing countries and across continents, scholars and practitioners will be able to collate best practices. Consequently, this will develop a clearer roadmap to inform implementation. This is particularly important because to date, e-government lacks a

universally agreed upon design and implementation framework that is appropriate for various contexts. In an attempt to address this gap, scholars have tried to illustrate the different stages of development that e-government systems go through from inception to full maturity or functionality (Layne & Lee, 2001; Deloitte & Touché, 2001; United Nations, 2000). However, it is important to note that most of these concepts have been largely based on the experiences of developed countries, leaving a gap in the knowledge around e-government in developing countries.

A few scholars have begun to advance the need to specifically evaluate the performance of e-government systems in less developed countries which have experienced minimal success. For example, Singh (2016) studied the application of e-government in India and found that the formation of institutional and regulatory frameworks has improved the country's agenda and overall performance. These include comprehensive ICT acts, policies and executive agencies.

On the other hand, Heeks (2003) believes that the success or failure of e-government systems depends largely on the gap between the current realities of the implementing environment and the design of the e-government system. He refers to this as the "design-reality gap" and proposes a theoretical model that calls for the analysis of several dimensions such as information, staffing and skills and management systems prior to design and implementation. Another commonly cited model is the Technology Acceptance Model which considers perceived usefulness and perceived ease of use as one of the main contributing factors impacting how well individuals and organisations adopt new technologies (Jaeger & Matteson, 2009; Al-Khatib & Lee, 2011; Lin, et al., 2011). By using this model, governments will presumably be able to predict if e-government systems will be a worthwhile investment and how best to ensure that users utilise the technology. The digital divide is another factor which has been widely used to describe the uneven distribution of access and literacy of information communication technologies (OECD, 2020; Van Dijk, 2006). Although the digital divide has been extensively studied by many scholars, only recently has it been applied to e-government. Bélanger and Carter (2009) found that income, education, age, internet use and online search experience were good predictors for the use of e-government services. This is an area that is worth studying for governments because the aim of public

administration is to ensure that information and services are available to all to derive public value.

The literature demonstrates that though ICT is the primary enabler for e-government success, there are various other contextual factors which either act as a hinderance or facilitator. These are the factors which need to be carefully analysed and built into system design in order to ensure better results. If e-government is expected to produce full public sector reform, the challenges of its implementation go beyond technology. They call for a multidimensional approach which brings about organizational transformation, requires strong political leadership and changes in public-private relationships (Ndou, 2004).

## 1.3 Research Question

The introduction of any ICT-led initiatives to the public sector is mainly considered a positive and necessary change. There is a growing amount of literature on the challenges and successes experienced by governments who have adopted these systems. There have also been numerous proposals of frameworks and models to better understand and predict the factors which influence implementation. However, one limitation is that e-government remains relatively unexplored in developing countries. Heeks (2006) states that there are many advantages and disadvantages of implementing ICT projects in the public sector and in as much as technology is the cause of these, the influence of humans on e-government success should not be ignored.

**Therefore, the main research question of this thesis is:**

*What are the factors facilitating and inhibiting the successful implementation of e-government in developing countries?*

***The sub question is:***

*What strategies could developing countries adopt to achieve more success when implementing e-government?*

In order to achieve this aim, relevant literature will be reviewed to get an understanding of current e-government research experiences in developing countries. This will reveal some of the unique local conditions affecting project implementation in these settings. Having this understanding allows implementing governments to develop the most context-aware and appropriate models which in turn increases the likelihood of success. This is particularly important for developing countries as they tend to be resource constrained. Therefore, ensuring proper design that is informed by local conditions will presumably improve implementation results. By exploring these experiences, this research study will contribute towards knowledge building on factors which have been potential barriers and drivers for successful e-government implementation.

## 1.4 Statement of the Problem

Many countries around the world have invested a significant number of resources towards e-government implementation. Strategically, government has been viewed as an important tool which can lead to the modernisation of public administration (Singh, 2016). Some of the driving factors behind widespread implementation have been the various potential benefits associated with e-government such as improved transparency, efficiency and accountability in government processes, reduced levels of corruption, greater citizen engagement and satisfaction, cost saving, strengthened public trust in government and improved achievement of policy outcomes (infoDev/World Bank, 2009; Singh, 2016; AL-Shehry, et al., 2006). These will be discussed in more detail in Chapter 2.

The benefits of e-government are well documented and continue to be a pull factor for governments. Unfortunately, they have not been experienced to their fullest extent by most developing countries. In 2007, an estimated 60%-85% of all e-government projects ended in failure (Heeks & Stanforth, 2007). Now some countries like India and Chile have made strides in their implementation which is an indication that developing countries have the potential to effectively implement and use e-government projects (Amanbek, et al., 2020). This also demonstrates that we

should not be absolutist in our views that e-government success can only be achieved in developed countries. These cases show that it is possible for low-income developing countries to experience positive outcomes when e-government projects are well conceived.

Although global results show that e-government development various from one country to another, some broad generalisations have been made. For example, a positive correlation has been observed between a country's gross domestic product (GDP) and its global e-government ranking (Ojha & Pandey, 2017). Countries with higher income levels (which are characteristically more developed), tend to have a higher e-government development index (EGDI); while developing countries with lower income levels score notably lower on all components related to e-government development (UNDESA, 2018). Similarly, Bwalya and Mutula (2016) find that many e-government projects have failed in resource-constrained countries due to the high costs associated with purchasing and maintain appropriate e-government systems. While financial resources play a crucial role in the procurement of robust ICT tools, it is important to be cautious when talking about the role of financing in e-government. Logically, GDP impacts if a country has the financial resources for a project and can potentially be an indicator for success, but it is not the only underlying factor that influences e-government initiatives. For this reason, this thesis aims to identify the other factors, prerequisites and concurrent issues which have led to a higher failure rate in developing countries.

Together, these are a few considerations which show that the path towards achieving digital transformation through e-government is very nuanced. This is evidenced by a lack of a single e-government design framework which can be applied across varying country contexts (Bwalya & Mutula, 2016). The only way that effective e-government can be achieved in developing countries is by firstly interrogating the various economic, legal, institutional, organisational, political, and cultural factors that are at play. Once these variables have been identified, they must be consulted during the design stages of e-government programs in order to make sure that implementation plans are strategically aligned to and will be effective in the unique environments they are applied to.

## 1.4 Methodology

A qualitative research approach was adopted for this thesis. Due to the fact that e-government research has typically been based on the experiences of developed countries, it is currently in its nascent stage for the developing country context (Bwalya, 2018). Therefore, this thesis is exploratory in the sense that is aims to investigate an area of study that has not been extensively looked at, this being e-government in developing countries (Hesse-Biber, 2017). In addition, e-government currently lacks any rigorous or universally agreed upon theory which inspired me to further investigate some of the factors which can be looked at as potential influencers for success or failure.

This research was informed by secondary data collected through an extensive literature review and document analysis of relevant books, government publications, reports by non-governmental organisations and peer-reviewed journal articles which focus on information systems. Specific factors influencing the implementation of e-government were identified through a scan of articles published in prominent journals like the Electronic Journal for E-government (EJEG) and the Public Administration and Development Journal. The United Nations E-government Development Index (EGDI) database was consulted to provide a preliminary understanding of global trends in status of e-government. The index is a composite measure of the provision of online services, telecommunication connectivity and human capacity available in all member states. However, this data does not provide a complete sense of what e-government development looks like across the world. A more substantive illustration was provided through the UN E-government Survey which is published annually to provide updates of global trends, successes, and challenges. Together, all of these data sources were used to gain an understanding of what other researchers had discovered on the status of e-government in developing countries. Through an analysis of these documents and texts I was able to identify some of the key characteristics which have been identified as critical in determining the success of e-government implementation.

## 1.5 Thesis organisation

Chapter 1: This chapter provided an overview of the research topic, a statement of the research problem and previous research that has been done on the successes and shortcomings of e-government. This was subsequently followed by a statement of the research question.

Chapter 2: This chapter provides the historical background of e-government development. It provides the various definitions employed and its uses as far as stakeholder applications are concerned. It also gives insight on some of the current frameworks which have been proposed for e-government implementation.

Chapter 3: The third chapter outlines how e-government success or failure has been defined and measured by policy analysts. It provides a brief summary of the status of e-government implementation across the world as presented by the e-government development index. Lastly, it observes some of the general trends that have been noted in developing countries.

Chapter 4: This chapter consists of a literature review which presents the main factors which have been identified as either contributing to the success or failure of e-government systems. This literature review makes particular reference to the experiences of developing countries.

Chapter 5: The final chapter presents an overview of the research objective and findings. It provides a conclusion and outlines some of the broader implications for developing countries moving forward.

## 1.6 Chapter Summary

Since its inception, governments across the world have been implementing e-government in the hopes of deriving numerous benefits like making the public sector more effective and efficient while becoming more responsive to citizens' needs for better service delivery. Although some developing countries have made progress, few have experienced the full spectrum of benefits with the majority of projects

ending in failure. Current research has been based on the experiences of a few developed countries, leaving the developing country context unexplored. Given these considerations, the main aim of this thesis is to explore some of the critical factors facilitating and impeding on the successful implementation of e-government in developing countries. This chapter has outlined the research objective and its overall significance for implementing governments.

# CHAPTER 2: CONCEPTUALISATION OF E-GOVERNMENT

## 2.1 Introduction

The effective implementation of e-government systems offers a variety of benefits for public administration and a country as a whole. According to Bwalya & Mutula (2014), when e-government is successfully implemented these benefits span through individual, organisational, national and societal levels. In order for these benefits to be realized, there firstly needs to be a full understanding of what e-government truly entails. When the totality of e-government is appreciated, this allows researchers and practitioners to better determine what strategies are most appropriate for the context in which initiatives are to be implemented.

Therefore, the objective of this chapter is to present the conceptualisation of e-government and discuss its various definitions and typologies. This chapter also discusses the motivations behind the widespread adoption and implementation of e-government and its various stakeholder applications. It also illustrates existing frameworks which have been proposed to predict the stages of e-government development. Having an understanding of what e-government is and the types of functions it can perform ensures that the drive towards transforming the public sector is based on empirical results.

## 2.2 Background on the development of e-government initiatives

When simply put, e-government is the use of ICTs to support government processes of governance and public service delivery. According to AL-Shehry et al (2006), it

includes the integration of two concepts, ICT, and government. ICT acts as the means for transformation and government as the environment of implementation. The main distinction between traditional systems of government and e-government is essentially that e-government employs different ICT tools to ensure that citizens have unlimited access to government information and services (Bwalya & Mutula, 2014).

Outside of the sphere of e-government implementation, the addition of “e” as a prefix to various concepts such as commerce, business, and learning typically refers to the use of electronic tools to support such functions. In this case, ICTs are the primary electronic tool being used. Therefore, at the most basic level, e-government is the use of ICT to enhance access to, and the delivery of government services to citizens, business, employees and government agencies (Silcock, 2001). This could simply consist of the creation and sharing of important government information on a website. However, by defining e-government in this way, we limit its potential impact and more importantly, the factors that need to be considered in order to enjoy successful implementation. Ndou (2004), posits that it is such narrow definitions and poor understandings of e-government which increase the likelihood of initiative failures. With this in mind, successful implementation begins with the careful definition and conceptualisation of e-government. Once this has been done, governments will have an informed view of e-government which goes beyond the simple development and introduction of ICT tools and web-based applications.

## 2.3 Definitions for e-government

While e-government has gained prominence in the field of public administration, there is no existing theory for it and there is not one definition that is universally agreed upon (Grönlund, 2010; Peristeras, et al., 2002). There are many definitions and perspectives from which the meaning of e-government is derived. Figure 1 below provides a synthesis of some of the definitions of e-government used.

**United Nations, 2019:** E-government is the use of ICTs to more effectively and efficiently deliver government services to citizens and businesses. It is the application of ICT in government operations, achieving public ends by digital means.
**Abramson & Means, 2001:** E-government is the electronic interaction (transaction and information exchange) between the government, the public (citizens and businesses) and employees.
**European Union in Grönlund & Horan, 2005:** E-government is the use of Information and Information and Communication Technologies in public administrations combined with organisational change and new skills in order to improve public services and democratic processes.
**OECD, 2003:** E-government is the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government.
**Layne & Lee, 2001:** Electronic government refers to government's use of technology, particularly web-based Internet application to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government entities. It has the potential to help build better relationships between government and the public by making interaction with citizens smoother, easier, and more efficient.
**Sudan, 2005**: Electronic government is broadly understood as the use of ICTs by government to enhance the range and quality of government information and services provided to clients in an efficient, cost-effective and convenient manner, while making government more accountable, responsive and transparent.

*Figure 1 Definitions of e-government*

As demonstrated in the definitions above, there are many considerations on what e-government stands for. Not only are the differences semantic, but they are also a reflection of the priorities of the implementing government (OECD, 2003). Whatever definition a country chooses to adopt sheds some insight on the particular purpose and outcomes it expects to produce.

Therefore, e-government is not merely the computerisation of government operations or simply providing information and services online. It should be considered a system that aims to reform government processes and create new relationships between the public sector and those it serves (Srivastava & Teo, 2004). E-government is fundamentally an instrument that has the potential to transform the entire public sector, its structures, processes, values, and culture to improve efficiency, transparency and value added to citizens (OECD, 2008). It is expected to radically shift how government operates internally, as well as how it engages and maintains external relationships with its citizens. However, for this transformation to happen, the public sector needs to consider not only the technological issues surrounding implementation, but also the political, cultural, and organisational challenges that often come with any reform (AL-Shehry, et al., 2006). A narrow understanding of the concept is likely to result in failure. Therefore, in order to reduce

the risk factors and possible project failures, implementing governments in both developed and developing countries must firstly contend with how well e-government is understood. Secondly, they must consider the overall public sector transformation that will be required as this has a direct impact on how well e-government is adopted.

## 2.4 Motivations behind e-government implementation

A significant volume of literature has presented e-government as a worthwhile endeavour and a tool promising to improve nation-states' communication, service, and transactional processes with its stakeholders (Stoltzfus, 2005). From this literature, a variety of reasons have emerged and have been cited as motivations for its adoption. These motivations are plenty and vary in focus, which naturally suggests that countries may choose to implement e-government with many intentions in mind, and these may not always be consistent across countries (Bwalya & Mutula, 2014; infoDev/World Bank, 2009).

The ultimate goal of e-government is to provide an enhanced portfolio of information and public services to citizens in an efficient and cost-effective manner. It also provides numerous other advantages and benefits, which is why it has and continues to be widely implemented across the globe. Although different models are implemented at varying degrees in developed and developing countries, the potential benefits of e-government projects tend to be the same across the board (Alsheri & Drew, 2011).

In his book on the role of ICTs in the process of reforming the public sector, Richard Heeks (1999) identifies five main benefits that technology can offer implementing governments. These are namely:

- Cheaper: producing the same outputs at lower total cost
- More: producing more outputs at the same total cost
- Quicker: producing more outputs at the same total cost in less time

- Better: producing the same outputs at the same total cost in the same time but to a higher quality standard
- For the first time: producing new outputs

These various benefits are not all encompassing of the potential gains that the use of ICTs can bring to the public sector. However, they do speak to aspects of improved efficiency and effectiveness which form the basis of the reasons that many governments have pursued e-government. The five components which have been identified address some of the historically perceived challenges with government. Beyond that, they can even be seen as contributing towards the overall process of reforming and innovating the public sector.

An examination of the history of e-government indicates that it first emerged in the 1990s. This was during a time when the use of ICTs was generally being promulgated across the world and the use of the Internet had resulted in new, cost saving ways of communicating and sharing information. Like many managerial concepts in public administration, e-government was introduced to the public sector in response to the experiences of the private sector, particularly the successful adoption of ICT-led innovations (Fang, et al., 2015; Moon, 2002).

The private sector was utilising ICTs to support a variety of processes like electronic commerce (e-commerce), electronic procurement (e-procurement) and Business Process Management (BPM) (Bwalya & Mutula, 2014). Most notably, e-government was a transfer of ideas and initiatives from e-commerce. Not only did governments purchase hardware and software that was initially developed by and for the private sector, but they also began to adopt arguments and discourse that was commonplace in commercial sector (Stahl, 2005). This included ideas like customer or citizen-centeredness, efficiency and cost-benefit analysis which were strongly associated to the success experienced in the private sector. Ultimately, these principles formed the basis and motivation for public sector organisations to search for similar ways to cut down on costs and improve overall efficiency. The advent of e-government promised the kind of service delivery method which would ensure this (UNDESA, 2008).

One of the main criticisms of governments is that they are wrought with bureaucratic red tape which makes them slow, wasteful, and generally unresponsive to the needs of their citizens (Stahl, 2005). On the contrary, the private sector is believed to be more responsive, agile, and efficient. Therefore, the instinctive assumption was that governments would perform better and faster if they adopted the same methods as businesses. However, Stahl (2005), warns against this way of thinking and challenges the limits at which commercial ideas are both relevant and easily transferable to public administration.

It is apparent that public organisations drew inspiration from and followed the lead of the private sector by adopting similar ICT solutions. However, Stahl's (2005) perspective point towards the reality that ideas conceived in the private sector are not always as easily emulated in the public sector. The circumstances and ways in which decisions are made in the two sectors are very different which presents different barriers as for as implementation of new innovations is concerned. For example, Hapsara, et al., 2017 suggest that the uptake of ICT projects is likely to be met with more resistance in the public sector where such decisions are largely influenced by public officials with various political objectives. On the other hand, the private sector relies on a self-organising market-oriented system for administering goods and services which makes decision making more straightforward and less subjective to the influence of individual actors.

Another reason public organisations may adopt e-government is to upgrade legacy systems which have become obsolete in an environment of rapidly changing technological innovations (Hapsara, et al., 2017). This is simply an effort to modernise the public sector in a way to maintain relevance. For example, when the United States decided to implement e-government, the main objective was to maximise the benefits of new technology by automating and integrating a variety of isolated government information onto one platform (Weerakkody & Choudrie, 2005).

For some countries, the motivation for introducing e-government to public sector service delivery frameworks is simply the tendency to conform with international norms and standards and to keep up with other public organisations (Hapsara, et al.,

2017; Bwalya & Mutula, 2014). As previously mentioned, e-government has been promoted by large international development organisations which have a global footprint.

Having an understanding of the motives behind e-government adoption is important as these oftentimes provide insight are linked to the organisational strategies of the implementing entity and oftentimes closely related to implementation objectives (Hapsara, et al., 2017). Although e-government undeniably offers a number of exciting benefits, it should not be approached as a panacea for all of the challenges faced by public sectors in emerging economies (Sudan, 2005; Bwalya & Mutula, 2014)

## 2.5 Types of E-government Stakeholder Applications

Freeman (2010) defines a stakeholder as “any group or individual who can affect or is affected by the achievement of the organisation’s objective”. In his seminal work he argues that the success and long-term effectiveness of any organisation is dependent on stakeholder involvement. Likewise, scholars suggest that the role of stakeholders in e-government implementation is central to its success (Rowley, 2011).

According to Rowley (2011), there is general consensus that the public sector involves a network of a variety of stakeholders with different value dimensions ranging from financial, social and political. This variety of constituents adds to the complexity of the public sector, which is inherently carried out onto the e-government environment. In an effort to reach these different stakeholders with varying interests, e-government is implemented in four areas which have different specifications tailored according to the targeted user (Bwalya & Mutula, 2014). The different forms of e-government are as follows: Government to Citizens (G2C), Government to Business (G2B), Government to Government (G2G) and Government to Employees (G2E) (infoDev/World Bank, 2009). By adopting different types of e-government applications, government presents different users an opportunity to experience the benefit of the system. Not only does this promote inclusivity, but it also allows

different governments the chance to implement the most appropriate systems which fit their priorities.

As far as the functionality and utility of e-government is concerned, it can be divided into two broad categories: internal and external (Moon, 2002; Nawafleh, et al., 2012). Internally, ICTs provide tools which allow governments to collect, store and manage data. Government is also able to communicate with employees via email and to perform routine tasks more efficiently. Externally, ICTs are able to link government with citizens, business and other government organisations. Information and services can be easily shared across these stakeholders.

These various internal and external stakeholders are divided into the following four categories:

### *2.5.1 Government to Citizens (G2C)*

One of the primary purposes of e-government is to improve citizens' access to government information and services (Alharbi, et al., 2014). In order for this purpose to be fulfilled, this calls for a better relationship between the government and its citizens. G2C allows citizens to have full access to government information and services on a 24/7 basis from anywhere through government organisation websites. It also affords citizens the opportunity to effectively participate in processes of governance and to engage in open discourse to shape policy (Bwalya & Mutula, 2014). As the e-government system becomes more dynamic and interactive (Yildiz, 2007), users are able to download forms which provides the added convenience of not having to physically appear and queue at government offices. This ultimately cuts down on service delivery time and significantly cuts the administrative costs associated with service delivery. Under this category, communication, transparency and accountability are improved. The sharing of information and service delivery becomes standardized across the board improving efficiency (Yildiz, 2007).

### *2.5.2 Government to Business (G2B)*

This category deals with the interaction between government agencies and the private sector. It enables businesses to stay informed on policies and regulations and to participate in policy formation processes, particularly those relating to private sector operation. The main form of transaction between government and business is through procurement, the assigning of contracts or the transfer of goods and services (Belanger & Hiller, 2006). E-procurement makes sure that the bidding process for contracts is completely transparent, this can ultimately contribute towards the reduction of corrupt practices. Like G2C, this form of e-government application cuts down on the time taken for service delivery. It allows businesses to perform routine tasks like filing business registration forms, paying taxes and acquiring and renewing business permits online. Additionally, G2B provides a link between the government and business corporations which promotes collaboration and the development of public private partnerships (Yildiz, 2007).

### *2.5.2 Government to Government (G2G)*

According to Seifret (2003), G2G application is the backbone of e-government. In order for effective e-government implementation to occur, governments must firstly focus on enhancing their own internal systems before pursuing electronic transactions with other stakeholders, namely citizens and businesses. This sector allows the integration of different government departments and agencies which in turn facilitates openness, transparency and ultimately, improved service delivery (Bwalya & Mutula, 2014). G2G application can work at two levels: local and international. At the local country level, it allows government ministries or departments to collaborate with one another in order to provide services and achieve goals. Under this inter-governmental application of e-government, information is easily shared across departments, coordination is improved and data that is pertinent to the mandate of different departments or ministries is standardised (Yildiz, 2007). For example, this can be achieved through the development and use of a common data clearinghouse. Information is housed in one place which allows departments to easily share resources and information. This ultimately improves the ease of inter-governmental collaboration and adds to the overall efficiency of public

service delivery. At the international level, G2G can be viewed as a catalyst for international relations and diplomacy (Bwalya & Mutula, 2014). It provides an online platform for governments of different countries to meet virtually to share information on global development.

### *2.5.3 Government to Employees (G2E)*

According to Belanger & Hiller (2006), online relationships between the government and its employees should be approached in the same manner as that of private business and its employees. G2E initiatives are used as a tool to improve the internal workings of government. This can be done through the establishment of a computer network within the organisation which allows employees to access and share information between each other and the government. This promotes internal collaboration amongst employees. Secondly, it is a platform that can be used to support the human resource capacity of the public sector. Under this function, it allows employees to see information on employment opportunities, available welfare schemes, scope of work and the work culture of the public service (Bwalya & Mutula, 2014).

## 2.6 Evolution of e-Government

The scope and purpose of e-government has grown to encompass more than just efficiency and cost savings. Its strategic goals have extended towards the improvement of public service delivery, in terms of both quality and access. According to Grönlund and Horan (2005), the impact of e-government can go as far as improving democratic processes such as participation, accountability, and interactive dialogue. This widening in scope provides an illustration of how e-government has changed over the years since its emergence.

In their research exploring the development of e-government, Layne and Lee (2001: 123) state that e-government is “an evolutionary phenomenon” that has undergone several stages of a growth model. Each stage of development is defined by the level of sophistication and complexity of the technology and the interaction it facilitates with internal and external partners (Layne & Lee, 2001; Moon, 2002).

## 2.7 Maturity Models and Research Models

Maturity models are one of the tools used by scholars and practitioners to assess and rank how well-developed e-government portals are. These models can be seen as a framework providing insight on how e-government systems are expected to develop from immature to full maturity (Karokola & Yngstrom, 2009). They provide a clear vision of the evolutionary process an e-government system undergoes from inception to full maturity.

In their comparative study, Fath-Allah, et al., (2014) identified 25 different models. Although these models differ from one another, they all typically outline the different stages of e-government development based on factors like increasing degrees of technical, organisational and/or managerial complexity or the level of interaction with citizens (Rooks, et al., 2017). Ultimately, maturity models can be used as a benchmarking tool to identify where a system's performance is currently ranked before addressing any possible barriers preventing success or further progression.

The most widely known model was proposed by Layne and Lee (2001) based on observations of e-government projects in the United States. The framework views e-government as an evolutionary process that goes through the following growth stages, namely: *cataloguing, transaction, vertical integration, and horizontal integration.* The following section provides a brief snapshot of some of the most commonly cited e-government models and the similarities and differences they share. Although this is not an exhaustive exercise, the aim is to  dentify some of the strengths and weakness of current maturity models and to see how these relate to the success and failure factors impacting e-government development. Because the Layne and Lee model was one of the first proposals, it is used as the primary framework upon which, other models are compared.

During the *cataloguing* stage governments focus primarily on establishing an online presence where static and limited information is shared to citizens. This stage of development is characterised by the lowest level of technological and organisational complexity. As the system evolves, it enables two-way communication between

citizens and government. This is the *transaction* stage. Users are now able to perform functions like renewing licenses, filing digital forms and paying taxes. At *vertical integration* each of these functions are connected across all stages of government. Agencies at the local and national level are able to share and consolidate citizen information. At the final stage e-government system reaches full maturity and achieves *horizontal integration.* This is where stems across different functions and government jurisdictions are integrated to form a "one stop shop" (Layne & Lee, 2001). Other models which share this feature include Deloitte and Touché's six stage model, Hiller and Belanger's five stage model and Almazan and Garcia's six stage model (Fath-Allah, et al., 2014).

One of the dominant criticisms of the Layne and Lee model is that it places much of its emphasis on technology and simply shifts government's inefficient bureaucracy to an online platform (Almuftah, et al., 2016). On the other hand, one could view Layne and Lee's model as a catalyst for re-evaluating the structure of government and the way different departments perform their job. If the final goal of horizontal integration is to create a public service that is coordinated, where agencies communicate with one another and share information through common databases; this requires more than just a change in technology. It requires government directors and staff to re-evaluate functional specialisation and to break down the silo structure (i.e., when departments operate as more or less autonomous agencies rather than sharing information and working together) (Peters, 2015).

Layne and Lee state that, "the practical realisation of e-government requires reconceptualization of government. As e-government becomes more prevalent, the public sector organisational structure will change accordingly" (Layne & Lee, 2001:135). This suggests that the reconfiguration of the public sector organisational structure comes as a natural response as e-government systems become increasingly sophisticated. However, one could argue that a coordinated public administration where officials already collaborate effectively across departmental lines is in fact a prerequisite for e-government success, rather than a by-product.

According to Peters (2015), policies and programs are more likely to be successful if coordinated throughout government, horizontally across organisations and vertically

between organisations at subnational levels. The statement made by Layne and Lee is potentially dangerous for developing countries whose public administrations typically lack coordination and have rivalries between departments which add an additional obstacle, ultimately, hindering programme success. A number of authors note that technology alone does not have an inherent impact, rather; impact is derived from the decisions of individuals, organisations and society to adapt and engage with the technology (Andersen & Henriksen, 2006). The influence of organisational and social institutions is amongst some of the non-technological factors which impact the development of e-government.

Based on this observation, Andersen and Henriksen (2006) proposed the Public Sector Process Rebuilding (PPR) model as an extension to Layne and Lee's model. The PPR model has four growth stages: *cultivation, extension, maturity, and revolution*. However, it distinguishes itself from Layne and Lee's by focusing on activity and customer experience, versus technological capability. For example, while the third stage of Layne and Lee's model links local and national government agencies, the PPR is concerned with facilitating self-service through personalised web interfaces. At the final stage, customers are able to trace employee's progress on cases or request. The PPR model not only distinguishes itself from Layne and Lee's model, but others proposed by the United Nations (2002), Deloitte and Touché (2001) and the World Bank(InfoDev, 2002). While the majority of models (Moon ,2002; Deloitte and Touché, 2001; Siau & Long, 2005; Lee & Kwak, 2012; Reddick, 2004; Windley, 2002; Hiller & Belanger, 2001) focus on establishing a basic web presence in the initial stage, Andersen and Henriksen begin with full vertical and horizontal integration throughout government which is the final stage for most models. This approach is less conservative than incremental progression from one stage of complexity to the next. More importantly, it carries more risks and may prove to be an ambitious goal for developing countries where technological infrastructure is not as advanced and resources are not as readily available. Other models offer the benefit of firstly assessing the effectiveness of a system within a single organisation, before scaling up throughout the entire government network. While Andersen and Henriksen offer a different viewpoint than other models, their approach may not be feasible for low-income developing countries.

The most critical drawback with the available maturity models is that the majority have been developed or applied according to observations of e-government initiatives in developed countries. Of the models identified by Fath-Allah, et al., (2014), six centred around US initiatives (Reddick, 2004; West, 2004; Layne & Lee, 2001; Windley, 2002; Lee & Kwak, 2012; Moon, 2002). The United Kingdom model was developed specifically for the United Kingdom. The only models reflecting on the experience of developing countries are Almanza & Gil-Garcia's (2006) who focus on the state of e-government systems in Mexico and Wescott (2001), who explores the Asia-Pacific region which is predominantly emerging economies. This indicates that there is generally a knowledge-gap in design frameworks based on the experiences of developing countries, particularly those in Africa. Bwalya and Mutula (2016) concluded that the majority of e-government initiatives in Africa have been implemented based on the models and results of studies done elsewhere, which in most instances is a developed country. This raises questions around whether or not e-government projects in developing countries are ill-conceived and potentially inappropriate for the economic, social, and cultural context because they have been built around the experiences of industrialised countries. This is particularly important because it carries significant implications for whether or not e-government initiatives are likely to fail or succeed. If maturity models were created as a framework to guide the development of e-government systems; developing countries have effectively been left in the dark as no model exists that is based on observations in these contexts.

In addition to maturity models, several scholars have developed research models to theorise which factors impact the successful implementation of information systems in general. One of the earliest and commonly utilized models is the technology acceptance model (TAM), initially developed by Davis (Davis, 1986) who theorised that information system (IS) success is largely influenced by user acceptance. Chao (2019) highlighted several weaknesses of the TAM which included a failure to assess individuals' perspectives of new systems and ignoring the relationship between usage attitude and usage intention. Given these criticisms and a need for a more multidimensional theory, several scholars have expanded models to include numerous factors which influence the success of information system implementation. Venkatesh, et al., (2003) proposed the unified theory of acceptance and use of

technology (UTAUT) which integrates eight prominent IT acceptance models. The UTAUT model identifies performance expectancy, effort expectancy, social influence and facilitating conditions as the most significant determinants of user acceptance, which is a major determinant of system success. One of the core similarities in IS models is the particular focus on the user as a determinant for success. This strengthens the view that the successful implementation of ICT solutions is not simply about purchasing hardware, but is about the complex interactions between systems, implementation environments and users.

DeLone and McLean (2003), concluded that there are six dimensions of information system (IS) success, namely; system quality, information quality, use, user satisfaction, individual impact and organizational impact, all of which are multidimensional and interdependent. Together these six dimensions form three distinct components of IS success, the production, use and subsequent impact of the interaction of the dimensions. Although there are different IS success models with varying degrees of complexity, one common feature is that they point towards the complex nature of ICT implementation and successful uptake.

## 2.8 Chapter Summary

The major benefits of e-government have been extensively documented by scholars and continue to be a motivating factor for implementing governments across the world. Although e-government is not a be-all and end-all solution to all of the challenges of public service delivery, it does offer the potential for improved efficiency, accountability, and reduced costs among many. E-government systems can come in various configurations which focus on different stakeholders; however, the overall assumption is that their development is an evolutionary process which follows a linear trend. Multiple maturity models have been proposed to illustrate this developmental trajectory from inception to full maturity with some being classified as technocentric while others are customer centric. Similarly, multiple research models have been proposed to theorize ICT utilisation and success.

What is noteworthy is that like the definition for e-government, there is no globally agreed upon maturity or utilisation model that can be applied across varying country contexts. More importantly, the majority of the models we currently have were

created or have only been applied to assess e-government initiatives in developed countries. This not only perpetuates the knowledge gap in global e-government development but presents an additional challenge for developing countries who are fundamentally left in the dark because no effort has been made to understand how maturity models function in this particular context.

# CHAPTER 3: E-GOVERNMENT DEVELOPMENT IN DEVELOPING COUNTRIES

## 3.1 Introduction

In this chapter, we take a closer look at the progress of e-government in developing countries. Before doing so, is useful to firstly understand some of the prevailing public administration challenges; some of which, officials hope will be mitigated by e-government. This background provides some context behind some of the push factors for pursuing public sector reform. In addition, it will give some precursory insight on the types of environments e-government is being introduced to.

Since the dismantling of colonial rule, many countries have been tasked with developing their own systems of governance. A significant number have struggled to build effective public administrations and have experienced various issues such as civil wars, autocratic rule and socio-political conflicts which have resulted in widespread poverty, instability, and underdevelopment (Hoque & Zakaria, 2014). According to Singh (2019), public administration is particularly important to the transformation of developing countries as it covers all aspects of service provision, socio-economic welfare and the maintenance of law and order amongst other functions. Therefore, e-government must be understood within the full context of public administration and its prevailing challenges in implementing countries. This is particularly critical because early applications originated in industrialised countries which have not undergone the same challenges as developing countries. It is therefore important to consider how well e-government functions in different administrative contexts and whether or not it can be easily replicated in spite of differences in administrative capacities (Schuppan, 2009).

This chapter provides more insight on the status of e-government implementation in countries that are typically resource constrained and seen to have weakly developed administration. Although e-government promises to significantly transform administrative deficiencies and undoubtably has the potential to bring forth development, we should not assume that it is inherently appropriate for developing countries. Having a clear understanding of the state of e-government in developing

countries is critical in order to determine a way forward that will harness ICTs for improved developmental outcomes and overall government effectiveness

## 3.2 Understanding public administration challenges experienced by Developing countries

One central feauture of many developing countries is their inheritance of public administration institutions from colonial powers. Following independence, a focal point for these coutries was towards nation building, national development plans and the capacity to see these to fruition. According to Abebe (2017), this opened up the space for a myriad of policy and institutional reform efforts such as Structural Adjustment Programmes (SAPs) and New Public Management (NPM) which aimed to bring efficiency and transformation to public administration systems. In the aftermath of decades of reform, what is now clear is that such initiatives are not always as effective in developing countries as they are in their originating Western countries (United Kingdom, United States and New Zealand). From these experiences, we are able to identify key shortcomings of public administration which have engendered poor implementation results.

Another interesting perspective suggests that the issues we see in the public sector are perhaps not limited to the inappropriateness of policy and institutional reforms, but more so, because of an entire incongruence between contemporary public administration and the traditional values, norms and cultures of developing countries. This is a view held by Amoah (2012) who suggests that the majority of shortcomings seen in developing countries, particularly in Africa are due to a fundamental difference in the ontological underpinnings of Western ideals and African values. He posits that a new type of public administration that is culturally informed must be created for [developing] countries because culture remains the fundamental framework upon which social and political practices are built The critical part that must be understood is how these cultural norms interact with the ideals that underpin contemporary public administration. Ultimately, the relationship between these two factors provide insight on some of the issues we still see in the public sector of developing countries.  Some of these perspectives and challenges are discussed below.

### *3.2.1 Culture, tradition and local values*

One dominant principle is “Ubuntu” which is philosophically based on community over individualism and the value of family and relationships (Basheka, 2015). Although not nefarious, these values are incompatible with contemporary public administration as evidenced in Ghana. According to Amoah, public policy reforms instituted by the World Bank and International Monetary Fund did not achieve their outcomes because of their incongruence with local values. For example, the reforms pushed for mass retrenchment to achieve a leaner, more efficient government and were met with resistance because of the society’s commitment to community, co-prosperity and family networks. This resistance to mass retrenchment ties into a common critique of public administration in developing countries which is a bloated bureaucracy. This issue is exacerbated by the appointment of government positions based on patronage rather than merit. Oftentimes, officials make public appointments to friends, family and political supporters who do not always have the necessary qualifications to hold office. This has an enduring impact on the ability of the public sector to formulate sound policies, implement effective programmes and deliver quality services i.e., its capacity. According to Fukuyama (2013), the degree of professionalisation and education of government employees is a key component of capacity. In instances where capacity is available, it is often patchy, or comes in “islands of excellence” as observed in Brazil (Fukuyama, 2013:344). One of these areas is the banking industry. Fukuyama states that the performance of central banks in Latin America in the 21$^{st}$ century has improved vastly since the years leading up to the 1980s debt-crises. He credits this improvement to an inrease in the amount of univeristy trained officials facilitated by a shift towards merit-based hiring as opposed to patronage.

Overall, the IMF (2020) insists that limited capacity is one of primary reasons developing countries continue to have poor systems of public administration. Together with other development agencies, the IMF has introduced programmes to build capcity across three dimensions; human capacity, organisational capacity and institutional capacity.

Another scholar that advocates for the study of culture and values and their impact on contemporary public administration is Tshikwatamba (2004). Similarly to Basheka and Amoah, he identifies traditionalism as one of the core values which have had a bearing on the functioning of government in developing countries. Traditionalism is defined as a “normative value that maintains customs, norms and living patterns that have been established over time” (2004:263). South Africa is referenced as an example of a country that has integrated traditional leadership, customary law and institutions into formal public administration. A caveat of traditionalism is that it may create a public administration that is too committed to old ways of doing things. This is particularly problematic when introducing reform changes which require institutional transformation. Nwosu and Kenneth (2018) also cite rigidity, resistance to change and a commitment to established routines and procedures as some of the challenges with public administration in developing countries. This dedication towards an old lifestyle, institutions and patterns of doing things despite societal changes is a beaviour that can manifest as a result of an extreme form of traditionalism which Tshikwatamba warns against. If not well managed, a commitment to historical instittions and practices may stifle innovation. All of these shortcomings are characteristics which have a direct impact on the ability of any entity to be agile and responsive to new innovations like e-government.

### *3.2.3 Informality in the public sector*

In his seminal work on public administration Schick (1998) discourages developing and transitional countries from blindly adopting reforms based on their performance in developed countries, specifically New Zealand. He indentified informality as one of the root issues which create an environment for corruption and inefficiency to thrive. Although many developing countries have set norms and standards and formal management tools to oversee how government functions, these are not always effectively applied. Informality is most common in hiring processes as previously mentioned but also where budgets are concerned. Schick states that developing countries have two budgets, a formal one that is formulated in parliament and an informal one that develops when spending occurs. Manning (2001) echoes Schick by stating that reform measures assume that formal budgets are the defining statement which constrain the behaviour of line departments. However money is reprioritiesed

to other areas which opens up opportunity for corruption and a culture of diverging from formal performance and output plans. This has a direct impact on where budgets are actually allocated, if programmes have enough financing to meet their objectives and ultimately, the quality of public service delivery.

Manning blames part of the informality seen in developing countries on the absence of a steady development trajectory where regulation of staff, predictable resourcing and policy capailities were built. Most developing countries have had to leap frog from colonial administration to full-fledged legislative,political and administrative institutions with the integrity and competence to deliver on national imperative These are all aspects that are necessary for a functioning public administration that is able to implement reform efforts successfully. When formal rules are absent or easily circumvented, policies and programmes can be undermined by self-interested officials. The informality in public administration of developing countries leaves it more vulnerable to officials using public office as a means to pursue personal motives which may be dishonourable and inconsistent with government objectives.

### *3.2.4 Chronic capacity deficit*

In a literature review of the performance of public sector reforms in Ethiopia, Ghana, Kenya, South Africa and Uganda, Abebe (2017) found that weak capacity is a chronic challenge that limits the effectiveness of public administration in Africa. When compared to other developing countries in South Asia and Asia Pacific, sub-Saharan Africa has and continues to be debilitated by a capacity deficit. While the issue of lack of skilled personnel has been explored, Abebe discusses wage rates and the retention of senior professionals as key aspects impacting capacity. He states that wage erosion has been most felt by public servants, specifically in Ethiopia.

Under the precripts of public administration reforms, many African countries reduced their work forces and wage bills in an attempt to reduce the size of government. However, this inadvertently left remaining employees demoralised and incapable of sustaining decent livelihoods due to rising inflation. Civil servants found themselves maintaining two jobs which naturally reduced their effectivenes in government office.

Even today, the wage bill discussion finds itself relevant in South Africa where remuneration of civil servants accounts for a third of government's budget, significantly higher than the global norm (Reuters, 2020). This also forms part of the austerity policies currently being advised by the IMF for low-income countries. However, as demonstrated by Abebe, cutting public sector wages also has the unintended impact of limiting capacity in countries that desperately need to attract and retain qualified public sector workers (The Public Services International, 2020). This leaves developing countries in a position where they must straddle the line between controlling public spending so they can afford to implement solutions such as e-government while ensuring that wages are attractive enough to retain qualified workers who provide the critical capacity needed to produce successful outcomes.

Although this list of challenges is not fully exhaustive of the shortcomings of public administration in developing countries, it provides an idea of some of the most recurrent issues. The rationale behind these issues may be different, however they point to a critical overarching question which is: *are reform initiatives conceived in the context of developed countries necessarily transferable or more relevantly, appropriate for developing countries?*

The history of ambivalence around the overall performance of the public sector and efforts made to reform it only presents a case for the careful examination of e-government, particularly because it has been promoted based on the assumption that if it works in developed countries, it will also work in the context of low-income developing countries. The perceived success of e-government in developed countries and the assumption that it can be easily applied to developing countries despite varying socio-economic conditions should be re-assessed. The very few trends highlighted in this section ought to be viewed as evidence that developing countries need to reconsider the natural enthusiasm they tend to have towards adopting initiatives promoted by industrialised countries, e-government being one of these.

## 3.3 Measuring the success of e-government implementation

According to Heeks (2001), “government in the developing nations costs too much, delivers too little, and is not sufficiently responsive or accountable”. Heeks is one of the few scholars that have dedicated efforts towards understanding the implementation of e-government in developing countries.

Under e-government, the public service is expected to harness the power of ICTs to address its administrative shortcomings, improve the standard of public service delivery, as well as overall government effectiveness. This makes it particularly relevant to developing countries which more than often face severe challenges with basic social service delivery and democratic institutions (Naidoo, 2012). E-government initiatives present the opportunity to fast-track towards improved standards of living and socio-economic status for all citizens. In 2001, the Global Forum on Reinventing Government stated that ‘e-government must be given serious consideration also in the developing countries not only for its potential for stronger institutional capacity building, for better service delivery to citizens and business (thus increasing local social and economic development), for reducing corruption by increasing transparency and social control, but also for “showing the way” to the civil society and business community’ (UN-DPEPA; ASPA , 2002)

It can fundamentally lead to better development outcomes, the alleviation of widespread poverty and the promotion of democratic practices. Ultimately, e-government can be the tool that bridges the widening gap the wealthy and the poor and presumably even between the global South and global North. Although many developing countries are well aware of the benefits of e-government and have committed a considerable amount of resources towards this cause, a significant portion of literature indicates that the majority of these projects have ended in some sort of failure (Heeks, 2003; Gunawong & Gao, 2017)

One crucial aspect of evaluating the status of e-government development is understanding what failure truly entails.

It raises questions around how we determine if and when a project has failed.

Heeks (2003) was one of the first scholars to define e-government failure and categorise it under three different camps; namely, total failure, partial failure, and success. These are defined as follows:

**Total failure:** the initiative was never implemented or was implemented but immediately abandoned.
**Partial failure:** major goals for the initiative were not attained and/or there were significant undesirable outcomes.
**Success:** most stakeholder groups attained their major goals and did not experience significant undesirable outcomes.

At the time of the publishing of this research, there was very little data available on the status of e-government in developing countries and few qualitative measures to provide insight on if initiatives were reaching their targets. To fill this gap, the United Nations created the E-government Development Index (EGDI) as a benchmarking tool to illustrate global trends in e-government development. The EGDI is a composite measure that specifically looks at three components: the Online Services Index (OSI), the Telecommunications Infrastructure Index (TII) and the Human Capacity Index (HCI). Together, these indices are evaluated to provide a country ranking which falls within the range of 0-1. According to the United Nations, a country's e-government index tends to be a reflection of the level of its economic and social development, as well as the democratic level of development (UN-DPEPA; ASPA , 2002). Therefore, oftentimes factors such as the social, economic and political composition of a country can be directly correlated with e-government development status. These factors are what determine the kind of environment that projects are implemented in and influence the types of decisions made by policy makers and administrative managers.

## 3.4 The status of e-government in developing countries

The most recent United Nations E-government Survey (2020) shows that there has been an overall improvement in global trends of e-government development. Many

countries have transitioned from lower to higher ranking EGDI levels. For simplicity and ease of comparison, the United Nations categorises its EGDI figures into four groups: very high which ranges from 0.75 to 1.0, high which ranges from 0.50 to 0.75, middle EGDI which is between 0.25 to 0.50 and lastly, low EGDI which is any figure less than 0.25.

Between 2018 and 2020, the number of countries in the very high EGDI group increased from 40 to 57, this included Argentina, Brazil, Chile and Costa Rica. Sixteen countries joined the high EGDI bracket, of which eight are in Africa. These are namely; Namibia, Cabo Verde, Egypt, Gabon, Botswana, Kenya, Algeria and Zimbabwe. Other countries that made similar strides are Jamaica, Bhutan, Bangladesh and Cambodia. This presents interesting implications because a notable amount of these countries are classified by the United Nations as either being amongst the least developed countries (LDCs), landlocked developing countries (LLDCs) and small island developing states (SIDS) (UN-DPEPA; ASPA , 2002). These survey results present some hope for developing countries because they demonstrate the potential to enjoy the benefits of successful e-government initiatives despite being characteristically resource constrained.

Given the number of countries which rose to the high EGDI category, there was a decrease in the middle EGDI group. Approximately 81% of the countries in this category are either LDCs, LLDCs and/or SIDS. As a general observation, the pace of electronic service provision and adoption has been lower than expected in developing countries than developed ones (Adbelkader, 2015)

The following paragraphs briefly detail the regional history and development of e-government in Africa and Latin America and the Caribbean.

### *3.4.1 Regional initiatives in Africa*

E-government initiatives were firstly introduced to Africa by the African Information Society Initiative (AISI) as early as 1996 (Chango, 2007). The AISI recommended that African countries adopt and implement national plans and policies that would support the use of ICT through key sectors including public administration. Since then, e-government has spread throughout the continent, notably at different degrees of success.

The most recent UN e-government survey (2020) acknowledges the notable strides made by African countries. Mauritius, Seychelles, South Africa and Tunisia recorded EGDI values that are above the global average and are currently the continent's e-government leaders. Approximately 56% of the countries in the middle EGDI category are located in Africa. Only eight LDCs are currently in the low EGDI category, of which seven are in Africa and one is in Asia (UNDESA, 2020).

The upward movement of countries from lower EGDI levels is an indication that some gains are being made towards the overall digital transformation agenda in Africa. In their book on e-government adoption and synthesis in developing countries, Bwalya and Mutula (2014) highlight the strides made by Mauritius, South Africa, Seychelles and Botswana. They explain that some of the reasons behind these country's success include widespread commitment from different technical and policy stakeholders, well developed institutional frameworks and relatively sound ICT infrastructure. However, this is not to say these countries have been spared from any challenges. Although progress has been significant, none of these countries have achieved the goal of universal e-government access, therefore showing room for improvement.

The survey also recognises Rwanda, Uganda and Tanzania for providing online services of better quality than other countries in Africa despite having "poorly developed infrastructure" (UNDESA, 2020:45) Rwanda has developed policy documents such as the National Information Communication Plan (2000-2015) and the Smart Rwanda Master Plan (2016-2020) which have been the foundation of its legal and regulatory framework for e-government development (Twizeyimana, et al.,

2018; UNDESA, 2020). The use of ICT in everyday processes is increasing and e-government platforms have reached a level of sophistication that allows two-way communication between government and the general public. One of the standout projects in Rwanda is the Irembo Digital Platform which was introduced in 2015. The platform grants citizens access to about 85 government services. The platform has facilitated over 2.7 million transactions such as driver's license applications and birth certificate applications. Government looks to extend service provision in the future (NEC, 2020).

Similarly, Uganda has a national e-government Master Plan which is regularly updated based on survey results that are collected every two years. Each government department is also mandated to develop and maintain a standalone website. Tanzania has developed a dedicated E-Government Authority which coordinates the country's entire e-government policy. Notably, Tanzania distinguishes itself from Rwanda and Uganda because it has prioritised public-private partnerships to ensure that digital transformation happens in all aspects of government and business.

Ghana currently has a global ranking of 101 out of 193 countries but it has been consistently progressing and has improved its ranking from an initial 138 in 2008 (UN, 2008). Part of Ghana's improvement is due to a $40 million loan it received in 2006 from the World Bank. The funding was used to develop ICT infrastructure, bolster public-private partnerships and enhance the quality of e-government applications. The country eventually launched its official government internet portal in 2012 (Agboh, n.d.) However, despite the financial support Ghana received and its progress over the last few years, it still has an EGDI index of 0.5960 which falls below the global average. This suggests that there may be some underlying challenges that go beyond budget and infrastructure which have hindered progress.

While assessing e-government development, it is important to observe another aspect of progress-the ability to maintain positive gains. A prime example of a country that has struggled to do so is Gambia.

Through a document analysis, Chango (2007) studied the implementation of e-government in Gambia. He found that when it was initially introduced, e-government looked like a promising investment. In fact, the Gambia was identified by the Economic Commission for Africa (ECA) as “the model country for e-government” (Islam & Okuda, 2004:2). Prior to programme implementation, the Gambian government had dedicated significant time and resources towards its design phase (Chango, 2007). This included performing a preliminary study in order to assess whether the available infrastructure and technical expertise were appropriate for various e-government projects such as the Personal Management Information System (PMIS) and Health Management Information System (HMIS) (Sander, et al., 2005).

From there on, a national e-government policy and strategy were developed, resources were then mobilized to carry out the strategy and a technical working group was formed to monitor and oversee the implementation process. With the support of a variety of private sector stakeholders, the Gambian government launched websites for most of its Ministries. It also initiated a project called Yegoo which was a “one stop” platform for citizens to gain information, engage in online forums and gain a free email service. It would appear as if the Gambia had gone through all required planning and designing to ensure success and had the necessary political will and public participation to make e-government widespread and effective through the public sector. These are some of the very same actions which have been associated with the consistent growth in Rwanda and Uganda. For this reason, other authors, Islam and Okuda( 2004) concluded that the Gambia’s national e-government strategy was likely to succeed. However, despite having seemingly done all the right things to create a conducive environment for success, the Gambia’s  e-government programme has largely failed to achieve its desired impact. One of the main observations is that the quality of technology was not a critical factor in the poor performance but lack of long-term project sustainability played a role and was exacerbated by insufficient management capabilities (Sander, et al., 2005).

### *3.4.2 Regional initiatives in Latin America and the Caribbean*

E-government was introduced to Latin America in the late 1990s at a time where the region was experiencing poor economic conditions, widespread financial crisis and debt (Porrúa, 2013). Given these challenges, the main focus was on improving the effectiveness of public administration with limited resources while implementing widespread state modernisation programs. This is where e-government promised to bring much needed change. At this time, Chile, Colombia, Brazil, Argentina, Mexico, Peru, Uruguay, Panama were amongst the first Latin American countries to adopt e-government for electoral processes and tax e-filing.

Now, the UN survey reported that the America's have experienced significant progress towards e-government development. Since 2016, the number of countries in the high EGDI rankings has almost doubled. Uruguay is currently a regional leader with an EGDI value of 0.8500. Other South American countries which have made notable strides are Argentina, Chile and Brazil which have all progressed from the high EGDI grouping to the very high category. In 2020, Argentina recorded an EGDI of 0.8279, Chile recorded 0.8259 and Brazil ranked at 0.7677. Costa Rica has demonstrated the most growth in Central America and achieved an EGDI score of 0.7576. Haiti remains the only country in the region that is still in the low EGDI ranking. It has an overall global ranking of 180 of 193.

A huge part of the success in these countries is due to the development and implementation of comprehensive national e-government strategies and the necessary supporting legal frameworks. For example, Argentina adopted a Digital Agenda to drive its institutional and governance framework for e-government transformation. Likewise, Brazil and Costa Rica adopted similar policy frameworks and to transform the public sector, economy and overall human capital. One of the key similarities in all of the mechanisms adopted is collaboration. The formulation and implementation of these frameworks has been largely driven by regular consultation with the citizens, coordination between local and international practitioners in e-government and lastly, collaboration with other Latin American governments to foster an environment of learning and best practices development (UNDESA, 2020). Despite this upward trajectory, the regulatory environment in most

Latin American countries has presented some bottlenecks and, in some cases, as is in Mexico, the standard is considered to have deteriorated (Baller, et al., 2016).

One of the major challenges in Latin America remains the uneven access to internet. The UN estimates that only 50% of households have access to internet and are able to take advantage of e-government services. Some of the reasons behind the low penetration of e-government include high cost of internet which is compounded by overall low human capital and low literacy. Latin America and the Caribbean generally lack capable and ICT skilled personnel to support e-government implementation.

## 3.5 Key Observations

Some of the key observations that we can extract from these country examples is that although e-government development (as indicated by the EGDI) is on the rise, the figures recorded by the UN should only be viewed as a proxy for performance. The EGDI methodology does not give an absolute representation of how successful e-government is in various countries. The three composites attempt to cover some of the dimensions of e-government, namely: (1) quality of online services, (2) development status of telecommunication infrastructure and (3) inherent human capital. However, this approach alone seems to address supply-side factors or simply put, the quality of the infrastructure provided yet it fails to account for how these initiatives have been received by the end users. Supply does not always equate to acceptance. Therefore, an evaluation of the status of e-government solutions needs to cover both the provision as well as the level of use or acceptance by the general public.

Additionally, the success recorded by Rwanda, Uganda and Tanzania in providing high quality online services while having poor infrastructure challenges the basic assumption that higher income earnings mean higher capital investment and ultimately, better e-government status. The UN admitted that although higher income levels tend to support e-government development, they do not fully determine progress. This is particularly encouraging for countries with limited resources. While

this is positive, it also adds to the view that e-government implementation is still nuanced and cannot be taken at face value without a thorough examination of the factors which create an environment for success.

## 3.6 Chapter Summary

The e-government development index has notably made a significant contribution towards benchmarking e-government status and shedding some useful light on global and regional trends. However, as seen the EGDI composite measures have various inconsistencies and alone do not sufficiently provide crucial insight into some of the reasons behind implementation success or failure. While we know that the level of social and economic development a country can be an influencer and in some cases an indicator of the status of e-government, these alone are do not provide an accurate account of additional factors such as institutional and policy frameworks and user acceptance. These are some of the critical factors which create the dynamic environment that e-government is implemented in and should be well understood prior to designing a system. When combined, these factors either inhibit or promote the successful implementation of e-government.

In order to fully establish the status of e-government in developing countries, policy analysts need to perform a thorough study that focuses not only on quantitative measures but also a comprehensive analysis of these systems and the country environments they are implemented in. In addition, the UNDESA survey provides a supply-side depiction of e-government development as the composite figures are only a measure of how well governments have done in providing ICT-led interventions. They do not give a sense of the actual uptake or use of these systems by citizens and public service employees; this being the demand-side (Kunstelj, et al., 2014). Additional factors such as policy frameworks, management processes, institutional environment and citizen beliefs need to be taken into account in order to better appreciate the reasons behind satisfactory or poor performance. Oftentimes, as demonstrated in the few country examples; the challenges that arise are caused by not one, but a combination of factors which together present bottlenecks in the implementation process.

# CHAPTER 4: IDENTIFYING FACTORS THAT FACILITATE AND INHIBIT E-GOVERNMENT SUCCESS

## 4.1 Introduction

While it is generally agreed upon that e-government is a key driver for public sector transformation, improved service delivery, inclusive democracy and overall growth and development, there are still many factors which stand in the way of successful implementation. Although current studies such as the United Nations survey illustrate increasing trends of improvement and cases of small-scale successes, e-government in developing countries is still considered to be generally weak, especially when contrasted with experiences from developed countries (Cloete, 2012). This is not to say that developed countries do not experience similar challenges. However, according to Adbelkader (2015), developed countries are generally better at overcoming implementation bottlenecks than developing countries.

Again, it is imperative to acknowledge that the vast majority of e-government studies have been largely based on the experiences of developed countries. As a result, the solutions and implementation strategies that have come out of these studies may not necessarily be relevant or applicable to developing countries because of contextual differences in institutions, technological infrastructure, financial resources, human resources, legislative and regulatory frameworks, and socio-cultural dynamics (Silcock, 2001; Joseph, 2015; Kaaya, 2012; Matavire, et al., 2010).

Gichoya (2005) states that e-government implementation is impacted by enablers and inhibitors. Enablers are factors which help to overcome the potential challenges that come with programme development, while inhibitors are factors which restrict successful implementation and the long-term sustainability of ICTs. He notes that inhibitors do not necessarily result in total implementation failure, however, they limit the degree of success achieved. The success of a project is impacted by the absence or presence of these factors. Ultimately, this means that the identified factors can work both ways. They can either promote or prevent success depending on if they are active in society or not.

As e-government continues to take centre stage in the development discourse, it is essential for developing countries to fully understand the complex nature of the factors which influence implementation outcomes. Though there has been a thrust for more ICT-led interventions aimed at poverty reduction and overall development, implementing a national e-government programme requires large capital investments. This makes it even more crucial for developing countries; which are typically resource-constrained, to examine the core factors which have an impact on successful implementation as they cannot afford to waste the money required for these initiatives (Alcaide Muñoz & Rodríguez Bolívar, 2018; Bwalya & Mutula, 2016).

The primary objective of this chapter is to identify some of the key prerequisites for e-government implementation. These are the dominant factors which have either acted as valuable contributors or inhibitors to the successful implementation of e-government initiatives. According to Moodley (2005:8), "if the surrounding context for proposed innovation is not sufficiently analysed and remedies for pressing socioeconomic problems addressed, many well-meaning efforts will have short lives and minimal results". This chapter is in part a response to this assertion and aims to build knowledge that will hopefully contribute towards paving a corrective course for projects which have experienced stagnation, while preventing any future implementation failures. Ultimately, this will propel developing countries further in their pursuit of effective e-government systems and overall public service transformation (Abu-Shanab & Bataineh, 2014).

## 4.2 A literature review of factors influencing e-government success in developing countries

A growing number of practitioners and researchers have been investing time and effort towards better understanding some of the challenges which have an impact on e-government systems. The research community has arrived at the realisation that although e-government is a technology-led initiative, technology alone is not the main determinant of success. Rather, success is influenced by the interaction of

technology, organisations and the environment in which projects are introduced (Gil-García & Pardo, 2005).

In his research on e-government issues and opportunities in Africa, Bwalya (2018) acknowledges that there are several different factors which act as barriers to successful e-government implementation. There currently is no single comprehensive list that identifies all of the factors which impact e-government implementation. However, the majority of literature shares common factors, however, these are not always referred to by the exact same name. The challenges noted from current literature have been grouped along six aspects, namely, infrastructural, financial, political, organisational, socio-economic, and human. These aspects were derived from a study performed by Nkohkwo & Islam (2013) on the challenges of e-government in sub-Saharan Africa. Although the focus of this thesis is not specifically on sub-Sahara, 34 of the 48 countries classified as least developed are located in this region (UNCTAD, 2015). It must be noted that developing countries are not homogenous, however, they are somewhat comparable in that they share similar socio-economic conditions despite being geographically different. Literature based on other countries such as Bangladesh, Pakistan and India were reviewed to get an impression of the experiences of developing countries outside of Africa.

Figure 2 below presents the most commonly cited factors. Together, these factors interact to determine the e-readiness of a country or organisation, i.e., the minimum infrastructure and supporting conditions which need to be in place to support the implementation of e-government systems (Bwalya, 2018). Knowledge of the technical infrastructure, policies, management capabilities, human resources and willingness of both government employees and citizens to adopt e-government systems is likely to increase the chances of successful e-government implementation.

| ***Aspects*** | ***Factor*** | ***Authors*** |
|---|---|---|
| *Infrastructural aspects* | Digital divide | Adbelkader, 2015; Moodley, 2005; Ndou, 2004; Meiyanti, et al., 2018; Murenzi & Olivier, 2017; Basu, 2004 |
| | Lack of interoperability | Ndou, 2004; Qaisar & Ali khan, 2010; Gichoya, 2005; Ebrahim & Irani, 2005 |
| *Financial aspects* | Lack of budget/limited spending on ICT/high cost of ICT tools/ high maintenance costs | Meiyanti, et al., 2018; El-Solfany, et al., 2012; Murenzi & Olivier, 2017; Basu, 2004, Nkwe, 2012 |
| *Political aspects* | Lack of regulatory framework | El-Solfany, et al., 2012; Basu, 2004; Bwalya, 2018; Odat, 2012 |
| | Poor e-government strategy | Ndou, 2004; Alcaide Muñoz & Rodríguez Bolívar, 2018, Mkude & Wimmer, 2013, |
| *Organisational aspects* | Resistance to change | Adbelkader, 2015; Ndou, 2004; Meiyanti, et al., 2018; El-Solfany, et al., 2012; Qaisar & Ali khan, 2010; Al-Khafaji, et al., 2012 |
| | Top management support/attitudes | El-Solfany, et al., 2012; Qaisar & Ali khan, 2010; Alcaide Muñoz & Rodríguez Bolívar, Bwalya & Mutula, 2016 |
| *Socio-economic aspects* | Income/GDP per capita | Murenzi & Olivier, 2017; (Kumar, et al., 2020) |
| *Human aspects* | Citizen trust/ perceived security risk | Adbelkader, 2015; Moodley, 2005; Basu, 2004; Sarrayrih & Sriram, 2015; Bwalya, 2018; |
| | Lack of e-government awareness | Sæbø, 2012; Murenzi & Olivier, 2017; Nkwe, 2012 |

| | | |
|---|---|---|
| | Education/ literacy rate, | Ndou, 2004; Murenzi & Olivier, 2017; Munyoka & Maharaj, 2017; Weerakkody, et al., 2009 |
| | Limited ICT skills/literacy | Murenzi & Olivier, 2017; Basu, 2004; Qaisar & Ali khan, 2010; Alcaide Muñoz & Rodríguez Bolívar, 2018; Sæbø, 2012, Ebrahim & Irani, 2005 |

*Figure 2: Adapted from (Nkohkwo & Islam, 2013) Challenges to the Successful Implementation of e-Government Initiatives in Sub-Saharan Africa: A Literature Review*

### *4.2.1 Infrastructural aspects*

#### *Digital divide*

The digital divide is defined by the OECD ( as quoted in Mariscal(2005)) as “the gap between individuals, households, business and geographic areas at different socio-economic levels with regard both to their opportunities to access information technologies and to their use of the Internet for a wide variety of activities”. It essentially refers to the difference between those who are ICT “haves” and “have nots”. A low digital divide suggests that access to ICTs is close to being universal, therefore increasing the likelihood of successful e-government implementation as services are accessible to all and uptake is widespread. According to the International Telecommunication Union (ITU), only 48.9% of the world’s population had access to ICTs in 2017, of which the majority (87%) were countries categorised as high-income economies, leaving developing countries with less internet access (World Bank, 2020). Notably, the digital divide also exists within different socio-economic classes in the same country. In South Africa, gaps between the rich and the poor have left those in rural areas not benefiting from e-government interventions (Murenzi & Olivier, 2017). This can generally be said about most developing countries as the digital divide is tied to the contextual economic conditions; generally, thriving economies are associated with increased ICTs access and use and those with lower economic growth with limited adoption and use(Nkwe, 2012). Developing countries tend not to have the necessary infrastructure and resources to deploy e-government throughout the entire country as is the case of Botswana where the high

cost of fixed lines, mobile phones and broadband continues to be a barrier that exacerbates the gap between urban and rural communities (Basu, 2004).
The digital divide is an important challenge to tackle because it has the potential to widen socio-economic gaps between the rich and poor. If left unaddressed, e-government implementation can ultimately create deeper divisions in a society. Developing countries need to be aware of the significant implications that digital government carries for the fulfilment of civic rights such as voting and access to goods and services. The more that these are administered through online platforms, the more that government needs to address the digital divide in order to ensure that it does not effectively leave the poor more vulnerable than before.

*Lack of interoperability*

According to Gichoya (2005), another barrier inhibiting e-government success in developing countries is a lack of compatibility or interoperability of data systems. Typically, government departments have always stored information on separated databases at different levels of government; ultimately, each department operates in isolation and very little information is shared across organisations. When e-government projects are implemented in a vacuum, the systems tend to be incompatible and data cannot be exchanged from one system to another due to different technical designs. Ndou (2004) states that internetworking is crucial because it creates opportunity for information sharing and the opens up different channels for service delivery. In order for e-government to achieve the end goal of full vertical and horizontal integration across departments, local and national government, the technology must allow cross-organisational information sharing. The integration of government databases will ensure that even if systems are not directly connected, they at least communicate with one another. In the end, any transactions that are made in one department can be propagated onto another system, the more that this is done the more accessible and consistent data will become (Ebrahim & Irani, 2005). Qaisar and Ali khan (2010) concluded that the key to ensuring e-government interoperability is collaboration. As previously identified, silo structures remain one of the general challenges observed in public administration and an inhibitor of joined-up government. The appropriate

technological infrastructure can help in mitigating this challenge and can lead to a more connected public service.

### *4.2.2 Financial aspects*

*Lack of budget/ limited spending towards ICT*

The deployment of e-government services requires considerable financial investment to purchase the necessary hardware, build up technical infrastructure and ensure that users have the necessary skills to support implementation. Basu (2004) reported that the success of e-government is to a degree dependent on a government's ability and readiness to spend on investing in the necessary ICT tools and associated costs. According to Nkwe (2012) and El-Solfany, et al., (2012), one of the most significant challenges in developing countries is a lack of money. This financial barrier is associated with limited financial resources and made worse by the high cost of ICT and telecommunications services. In cases where the initial start-up financing is available, the issue becomes a lack of long-term funding where governments have only considered the initial costs of setting up a project without planning for its long-term maintenance and upgrading as ICT conventions change. Other authors found that the source of e-government funding is as important as the availability of resources. According to Murenzi and Olivier (2017) e-government projects in most developing countries are usually funded by international donors. Although this may appear innocuous, this has been a major barrier in Rwanda which has limited the control that local government has on projects. Subsequently, programme implementation is heavily influenced by donors who have the power to either completely suspend projects or change how quickly tasks are executed.

Sæbø (2012) concluded that the lack of funding is not only about limited resources but the lack of structure to make funding available and to create budgets and plans on how those resources will be distributed. Similarly, Meiyanti, et al., (2018) agreed that even when budget is available, these resources tend to be poorly managed in developing countries.

### *4.2.3 Political aspects*

*Lack of regulatory framework*

According to El-Solfany, et al (2012), the success of e-government requires the public sector to ensure that all e-government programmes and operations are guided by effective policy and regulatory frameworks. Bwalya (2018) echoes the same sentiment that e-government can only be successful in environments which have dynamic legal frameworks. These frameworks are the primary policy documents which outline the laws and regulations that will govern how transactions are performed. While many developing countries have shown some progress in developing ICT systems and applications, Odat (2012) found that there is a gap in the provision of effective laws and legislation to support the use of these electronic systems. On the other hand, Basu (2004) reported that 26 of 30 OECD governments have grasped how critical legal frameworks are in ensuring that practices like digital signatures are legally recognised to allow online submissions of personal or financial information. This number has presumably increased since the completion of the study.

Regulatory frameworks are the groundwork that is necessary to see a transition from traditional, paper-based transactions to online service provision. The only way that this shift can occur is if governments identify and address the legal implications of this change. Such frameworks need to consider how personal data will be collected, stored, and shared across different government agencies. One of the key challenges presented by this is the fact that regulatory frameworks have to precede the adoption of e-government systems and effectively anticipate the legal risks that come with transforming traditional methods of processing signatures, payments, and electronic authorisations. Therefore, developing countries have to dedicate time and effort towards setting up the necessary laws well in advance of enforcing these various electronic processes. Odat (2012) believes this would be made easier if there was a definitive guideline on what regulatory measures are necessary, however, all developing countries are at different stages of e-government maturity and have

varying programme objectives and resource capabilities which make it difficult to promote a one size fits all regulatory framework. Once again, this further supports the idea that e-government development and success is highly complex and context specific.

In addition to ensuring that online processes are enforceable, regulatory frameworks provide legitimacy. Basu (2004) makes it clear that the enforceability of an e-government initiative is impacted by the overall legitimacy of the government; legitimacy is derived from the creation and implementation of sound laws and regulations. A well-thought-out framework gives users more confidence on how their personal information will be used, an aspect which relates directly with citizen trust in the system, privacy and the perceived threat of security risks. As previously mentioned, users are more likely to feel safe performing transactions on the internet if they know that their records are managed in accordance to appropriate and robust statutes (Bwalya, 2018).

*Strategic e-government plan*

According to Ndou (2004), one of the main barriers to e-government success in developing countries is a lack of an appropriately developed and context specific strategic plan. During this process, countries must define the overall objectives of the e-government systems and the various the economic, political, legal, and cultural prerequisites necessary for project implementation to ensure that e-government systems are aligned across local and national government levels (Mkude & Wimmer, 2013). A major part of the strategic plan requires thorough assessment of the current realities on the ground, an articulation of the end goal and a long-term vision on service will be sustained (Ndou, 2004).

Ultimately, a strategic plan answers three questions: “where are we now?”, “where do we want to go?” and “how do we get there?” (Heeks, 2006). Heeks posits that one of the reasons developing countries lack effective strategic plans may relate to attitudes of senior managers who do not have the time to plan or believe there is urgent need for reform and therefore, rush into implementation without careful consideration. This view may hold some merit as strategic planning can take a few

weeks or up to several months and requires various steps including creating an e-government steering committee, consulting with the existing organisational strategy which will inform e-government objectives and meeting with technical advisors who will give insight on the systems. This process can present a barrier to developing countries because it is time-consuming and requires additional financial investment whereas these countries are already resource constrained. Alcaide Muñoz and Rodríguez Bolívar (2018) recommend that developing countries must establish control mechanisms and coordination between government departments as part of their strategic e-government plan. Clear objectives need to be defined with both short and long-term horizons and ultimately, all of these factors must be context specific and realistic for the current public administration.

Although the time and money required to develop such an effective e-government strategy may seem like an additional cost, e-government projects are huge and expensive long-term investments. The cost of a failed e-government initiative far outweighs the cost of planning.

Therefore, prior to implementation, countries need to consider their goals, timeframes, expectations on how finances will be utilised, long-term vision, potential obstacles and the role and expectations for government. The more comprehensive the e-government strategy is, the better management is able to maximize its ability to achieve the objectives it has set out.

#### *4.2.4 Organisational aspects*

*Resistance to change*

Adbelkader (2015) posits that resistance to change is an internal factor that hinders the use of e-government solutions within the implementing organisation. When fully implemented, e-government reinvents how government processes and functions are done and sometimes, changes the formal job descriptions and duties of employees. As the work environment changes, some employees who were previously involved in paper-based roles may resist the transition to digital services because they view the ICT as a loss of their power and essentially a threat to their jobs (Adbelkader, 2015;

Qaisar & Ali khan, 2010 ). Al-Khafaji, et al., 2012 found that this is most likely in older employees who lack ICT skills as observed in Iraq. Similarly, resistance to change by public officials was one of the major issues which limited the success of the Vijayawada Online Information Centre (VOICE) municipal e-government project in India (Ndou, 2004). According to Ndou, officials feared they would lose their jobs and were therefore reluctant to learn how to use the technology and adapt.

*Top management support/attitudes*

A lack of support from top management can add to the challenges faced by developing countries. El-Solfany, et al., (2012) believe that senior managers play a critical role in creating an environment that encourages the use of ICT amongst employees. They consider this as one of the key factors which has inhibited e-government development in Saudi Arabia. One way of the ways that top managers can create a conducive environment for program success is through the development and promotion of training programs and incentives to support the use of e-government (Alcaide Muñoz and Rodríguez Bolívar, 2018). This will ultimately reduce any resistance that lower lever employees may have towards adopting new technology. However, the ability of a manager to encourage their subordinates is largely dependent on the attitudes they themselves have towards e-government. If top management does not see the value of an initiative, they will likely fail in convincing and providing the necessary support to ensure success. Secondly, it is possible that senior managers may be unwilling to embrace new technology because like junior officials, they may think it poses a threat to their authority. Therefore, it becomes impossible for employees to be confident in the transition without the commitment of their leaders.

In addition to encouraging uptake by civil servants, buy in from top management is critical because they are the primary influencers on how finances are managed. In their study of e-government implementation in Pakistan, Qaisar and Ali khan (2010) noted that top management was reluctant to provide funds for the expansion of e-services to another department, ultimately, the e-government project was delayed. This is one illustration of the direct impact that senior leadership and bureaucracy can have on the success of an initiative.

Another aspect of leadership that has inhibited success in developing countries is a lack political will (Bwalya & Mutula, 2016). Not only is support important from managers within government agencies, but also throughout political parties. A lack of political will towards reforming government and improving its effectiveness and efficiency is a key barrier to transformation in general. Developing countries need to have strong political leadership that will remain committed to e-government development beyond its initial introduction and with subsequent ministers who may not have been involved in the early stages of development. This also speaks to a need for developing countries to create robust policies and structures which will stand the test of time despite any changes in leadership.

#### *4.2.5 Socio-economic aspects*

*Income/GDP per capita*

Murenzi and Olivier (2017) found that limited financial capacity at the household level is one of the challenges preventing widespread e-government adoption in developing countries. Low-income households are understandably less likely to prioritise spending money towards acquiring basic technology where the majority of their budget only allows them to spend on basic necessities like food and housing. Likewise, Kumar, et al., (2020) concluded that higher GDP per capita can generally be associated with more investment available for e-government development and ultimately, more successful implementation. Developing countries with lower income per capita find themselves investing more towards basic requirements than ICT infrastructure.

#### *4.2.6 Human aspects*

*Citizen trust/perceived security risk*

One of the main determinants of e-government success is trust. A lack of citizens' trust is one of the factors limiting e-government adoption and utilisation. According to

Carter and Bélanger (2005), there are two aspects of trust: trust of the actual ICT infrastructure and trust in the government. In order for individuals to use e-government, they must have trust in both these components.

In most developing countries, users have limited trust in e-government applications and are generally hesitant about disclosing their personal information on government websites because of the fear that their information will be mishandled or misused (Bwalya, 2018). According to Munyoka and Maharaj (2017), the fear of fraud during an online transaction is one of the major challenges faced by e-government users in Zambia and Zimbabwe. These concerns are inherently influenced by the user's perception on the security of the platform and ability to protect the personal data such as their name, picture, tax information, identity number and credit card details. In their study of e-government systems in Oman, Sarrayrih and Sriram (2015), similarly identified security risks as one of the major challenges impacting implementation. The authors posit that in order for better utilisation results, developing countries need to focus on implementing robust security features to ensure that users feel adequately protected from potential cyberattacks and fraud. Security is the cornerstone of e-government privacy and must integrate features like security policy and technologies such as firewalls, biometrics, encryption and digital signatures amongst many (Alghamdi, et al., (2011); Bwalya, (2018)).

As cited in Bojang (2018), Carter and Bélanger (2005) concluded that "perceived ease of use of e-Services, compatibility and trustworthiness in the systems are significant predictors of citizens intention to use an e-Gov service". Ensuring that e-government initiatives align with citizen's expectations on how their personal information will be used is crucial for building trust in initiatives. The implications of this requirement are twofold, government needs to find a balance between upholding individual privacy and security principles as is expected in any democratic country while also fast-tracking development of improved welfare conditions (Basu ,2004). This ultimately calls for robust regulatory frameworks and public policy which provides enough security protection and rules governing how personal, financial, and medical information is used while avoiding creating unnecessary restrictions for users and private stakeholders. Like any online transaction, those done on government websites are equally vulnerable to potential cyberattacks; this is a

perceived threat which may result in less usage. If the goal of e-government is to provide 24/7 services to citizens, projects would be considered a failure if they are not effectively utilised by the public and if individuals continuously elect to visit government offices. When citizens have lower perceptions of the risk of using online platforms, their use of e-government systems tends to increase.

*Education/ Literacy rate*

According to Ndou (2004), the success of e-government is influenced by the availability of appropriate training and education programs. This challenge is two-fold and refers to the general literacy rate of a country as well as specific ICT skills possessed by government employees and the public . In their study of e-government implementation in the Southern African Development Community (SADC) region, Munyoka and Maharaj (2017) found that the higher the level of citizens' education, the higher utilisation will be. This is consistent with observations made by Murenzi and Olivier (2017) who found that low levels of basic adult education were limiting e-government utilisation in South Africa and Rwanda, this is particularly because over 56% of internet content is in English, making it inaccessible for rural populations who are English illiterate. Developing countries, therefore need to consider that low levels of e-government use may be attributed to an inability to access services in a local language, as is the case in Sri Lanka (Weerakkody, et al., 2009). This would be a notable challenge for a country like Zimbabwe which has 16 official languages as opposed to Canada which only has two.

*Limited ICT skills*

A lack of ICT skills remains a challenge for developing countries (Nkwe 2012; Nkohkwo & Islam, 2013). Murenzi and Olivier (2017:150) argue that even if a country has the finances to purchase all the necessary ICT tools, these may not be utilised at the desired level to make an impact on service delivery because of insufficient "how-to-knowledge/ICT literacy" of civil servants. According to Qaisar & Ali khan (2010;134), this has limited the impact of e-government solutions in Pakistan because organisations lack staff who are computer literate; consequently, "80 to 90% of activities are [still] performed offline" because employees are simply unable

to use the technology. Older generations make up the majority of those without ICT skills in Botswana (Nkwe, 2012).

In addition to lack of skilled staff, Sæbø, (2012) and Ebrahim and Irani (2005) notes that the few government employees with ICT expertise tend to be underpaid in comparison to their counterparts in the private sector, thus resulting in a high turnover rate. Therefore, a large part of e-government implementation needs to consider the development of human resource capabilities ranging from technical skills for installation, infrastructure maintenance and day-to-day processes and transactions (Ndou, 2004). Specific initiatives like staff training, workshops and incentives are needed to make sure government officials know how to use the technology, can explain the value of the systems to their communities who may not have any prior exposure and are inclined to remain in the public service. Additionally, governments need to implement education training for the general public to make sure citizens have the skills required to utilise e-government platforms (Alcaide Muñoz & Rodríguez Bolívar, 2018). In order to ensure long-term sustainability of e-government initiatives, developing countries need to increase the level of ICT education in higher learning institutions to ensure availability of a skilled workforce (Basu, 2004). Capacity training needs to be a continuous process which ensures that capabilities keep up when new technologies and practices are developed. Ultimately, developing countries need to consistently devote resources towards education programs to ensure that citizens and employees are able to enjoy the full benefits of e-government.

*Lack of e-government awareness*

Murenzi and Olivier (2017) stated that e-government utilisation is largely impacted by the fact that governments often invest in ensuring that online services are available for use by citizens, following which little attention is paid towards promoting awareness. In their study, they found that 74% of Rwandese survey participants were not aware that their district municipality had a website. Those who knew of the website had very little awareness of the benefits of using the service. Sæbø (2012) reached a similar conclusion in his study of the implementation challenges in Tanzania where he concluded that it is impossible for users to benefit from a service,

they are unaware of. This lack of awareness also extends to the supply side perspective where public servants do not have a good understanding of what e-government is, how to manipulate it and the impact it can have on public sector functions and overall development. In this event, employees tend to be less likely to be receptive of the initiative which amplifies the challenge of resistance to change.

The challenges highlighted emphasize the importance of adequate planning is informed by current organisational and local conditions. Additionally, developing countries need to engage in a continuous evaluation of its e-government systems to ensure that they are achieving their objectives and are a valuable contribution towards overall development (Mkude & Wimmer, 2013). Where they are any shortcomings or challenges, e-government leaders need to be in a position where they can develop actionable plans to mitigate any arising issues.

In the same way that scholars have dedicated time towards investigating the factors which inhibit successful e-government implementation, there is a need to understand what strategies can be employed to guide future implementation in developing countries. These strategies or success factors are illustrated in a variety of toolkits and frameworks which have been developed with the aim of helping developing countries to implement effective e-government initiatives.

## 4.3 Strategies for successful implementation

Given the current trends of e-government failure, there is growing interest in figuring out what assistance can be provided in order to ensure that ICT applications are successful and fulfil the purpose of improving service delivery and overall public sector efficiency in developing countries. Developing countries have generally experienced more challenges in implementing e-government than developed countries have. In events where implementation showed early signs of success, some projects soon failed because they were not designed well enough to ensure long-term sustainability. Developing countries now find themselves at a critical point where they need to undergo an extensive learning process to evaluate the lessons which can be extracted from pre-existing e-government projects that did not meet their objectives. It is this kind of reflection that will guide government officials, political

leaders, and policy makers in determining what changes need to be made to make sure that developing countries enjoy the benefits of well-executed e-government initiatives. Ultimately, public administrations will begin the process of building the necessary capabilities to design, implement and maintain the ICT projects which form their e-government programme.

Having assessed the factors inhibiting e-government success, the most pertinent question now is:

***What can developing countries do to achieve better implementation results?***

Therefore, the aim of this part of the thesis to highlight some of the strategies which could enhance the implementation of e-government in developing countries. These strategies are inherently informed by the inhibiting factors which have been previously identified and the collective lessons which have been learned from the experiences of various countries. One of the fundamental challenges that developing countries face is dedicating resources and creating capabilities to make sure that e-government projects are customised to fit the specific local contexts. This demands that all ICT based initiatives are adopted to fit the organisational, political, economic, and cultural context environment they are introduced to. Although various roadmaps, strategies and frameworks have been proposed (Gant, 2008; The Working Group on E-government in the Developing World, 2002; Apleni & Smuts, 2020) these must be approached with caution so not to assume that there is a “one size fits all” solution to e-government challenges. Though reflections have been consolidated to form a collective roadmap highlighting key factors for success, each country must still tailor these solutions to fit the unique circumstances of its public organisations. According to Gant (2008), this requires government to have skilled human resources with the necessary capacity to not only adapt to the new technologies and practices, but to also have the ingenuity to make sure that they fit the local context.

Following an assessment of the challenges faced by developing countries, Gant (2008) highlights seven key recommendations to assist governments with building the necessary skills to implement and maintain successful e-government.

### *4.3.1 Development of a strategic plan to guide implementation*

As previously highlighted, the lack of an effectively developed strategic is one of the key factors which has limited e-government success in developing countries. Gant (2008) highlights that not only is a strategic plan critical in ensure success, but success lies in the details of how the activities leading up to this roadmap or executed. Specifically, who is involved in this process and how much discretion are they given. It is important for developing countries to adopt a collaborative approach when creating their strategic plans. This ensures that all relevant employees from senior managers to lower-level frontline workers have an influence over the process and increases the level of innovation.  For example, opening up the planning stage to frontline workers is one way of getting a sense of the needs of citizens because clerks and administrators are in most cases the only employees who interact directly with the public on a daily basis.

Similarly, to Gant, the Working Group on E-government in the Developing World came to the conclusion that “e-government must be a shared vision” (2002:8) that is achieved through widespread consultation. The group expands the level of collaboration to include private sector organisations, citizen groups, unions NGOs and civil society groups. They advocate for developing countries to host meetings, conduct polls or include various stakeholders in planning committees to ensure that e-government strategies are a collaborative effort that cover the needs of all relevant stakeholders. This not only creates awareness and buy-in but also restores citizens’ trust in their government, particularly in environments where corruption and instability are commonplace.

### *4.3.2 Understanding the needs of all citizens*

Implementing governments need to make sure they understand the specific needs and capabilities of their users prior to adopting any ICT applications. The majority of e-government frameworks recommend that developing countries adopt a “citizen-centred” approach to implementation (The Working Group on E-government in the Developing World, 2002; Bwalya, 2018; Mkude and Wimmer, 2013). This demands that e-government systems are designed with the various characteristics of end-

users in mind and to make sure that no user is limited in their use of electronic applications because of their socio-economic status and disability for example. This customer-driven approach would address the challenge of low e-government adoption due to literacy rates or limited language offering. The more customer-oriented e-government services are, the more they will be able to allow every individual to fulfil their human development needs (Gant, 2008). Although e-government projects do offer the benefit of transforming government's internal operations, the ultimate goal should be to improve public service delivery for the ordinary citizen. Beyond engaging with stakeholders in the initial design stages, Kumar, et al., (2007) recommend that implementing governments continuously get feedback from citizens on what their needs are as well as their satisfaction with ICT applications. Mkude and Wimmer (2013) are also of the opinion that regular evaluation is critical in order to measure the value added and results of a project against its objectives. The results from these surveys ensure that e-government consistently offers real benefits to citizens even when the technology evolves. The more developing countries assess customer needs, the more capable they will become in creating effective strategies for future implementation. According to the Working Group on E-government in the Developing World, "citizens are the e-government experts" (2002:24) and projects that are primarily created to serve the public must be piloted before being scaled-up and assessed to see if they meet the public's needs.

#### *4.3.4 Use of effective system development practices*

Gant (2008) suggests that government departments need to focus on improving the quality of services they deliver rather than merely focusing on internal processes which only reinforce pre-existing processes and routines. He encourages governments to dedicate effort towards reassessing administrative processes as opposed to simply transferring the same paper-based procedures to online platforms. This calls for helping employees to adjust their thinking to see e-government as an overall organisational change.

### *4.3.5 Creation of a learning organisation*

Building an organisational environment that encourages continuous learning is critical for e-government success. Gant (2008) states that it is important for employees to build new knowledge based on their experiences which they are able to share openly with their colleagues. This calls for mangers to intentionally create an environment that encourages and supports knowledge building and a culture where information is shared easily. This can be achieved through cross functional teams, cross training, and a repository to house any shared information. Likewise, Ziemba, et al., (2015) identified the creation of an information culture within government departments as one of the factors which create a conducive environment for e-government success. This is one way that organisations can overcome the barrier of resistance to change, by opening up discussion, creating a culture of learning and teamwork where employees view themselves as partners and key role players in the success of e-government rather than seeing it as a threat (Odat, 2012).

### *4.3.6 Development of an effective ICT governance*

ICT governance speaks to the organisational capacity to oversee the development and implementation of the ICT strategy and to ensure that this is in alignment with the overall operational goals of the organisation (Gant, 2008).

### *4.3.7 Development of ICT capabilities*

Ziemba, et al., (2015) suggest that the development of ICT competences within government departments is one of the most critical success factors which developing, emerging and transition countries need to pay attention to. Gant (2008) believes these capabilities are both technical and managerial in nature and require coordination between employees and various stakeholders outside of the organisation. This calls for developing countries to focus on relationship building and particularly, leverage the use public-public partnerships as suggested in the e-

government handbook created by the Information for Development Program (InfoDev, 2002).

By forging multi-sectoral collaboration, government will benefit from the expertise that private organisations have built from using similar ICT solutions. The Working Group on E-government in the Developing World (2002) agree that private sector partnerships are critical in creating revenue streams which can expedite the roll out of e-government projects. Additionally, these relationships contribute to the larger objective of creating a learning and knowledge sharing culture throughout the public sector. However, in order for these partnerships to be successful, all cooperative projects must be approached with caution, formal policies must be created to guide how contracts are awarded, awardees must be vetted thoroughly and all agreements must undergo routine assessment to ensure that they are delivering on their objectives. By outsourcing some services to the private sector, developing countries are able to address the challenges they currently have with limited ICT literacy while also creating alternative funding mechanisms to ensure that projects are adequately funded. One of the other inhibiting factors found was the reliance on funding from international donors which tends to stifle the rate of progress and level of influence governments have on how e-government projects are implemented. The creation of private-partnerships with local companies contributes towards the long-term development of ICT capabilities. In the event that local companies do not have the requisite capacity, government can look at pairing these businesses with a suitable multinational company to facilitate technology and skills transfer while retaining control over implementation and building up local industry (The Working Group on E-government in the Developing World, 2002).

#### *4.3.8 Provision of a secure experience for e-government users*

One of the critical lessons that developing countries must consider is how to build an ICT infrastructure that is safe from cyber security threats. Odat (2012) states that system designers need to be able to anticipate any potential attacks and to develop the appropriate safeguards to ensure that breaches either do not occur, or they do not lead to catastrophic failure of the system. According to Gant (2008), government

ministries need to devise security strategies which guard against orchestrated attacks like computer viruses and hacks as well as environmental events like tsunamis, fires, hurricanes and power outages. Developing countries need to implement comprehensive security strategies which cover both preventative measures such as limiting unauthorised access to data, provide diagnostic applications for early detection of attacks, limit damage in the event that a breach occurs and lastly, ensure that recovery happens as quickly as possible to maintain the integrity of the system.

## 4.5 Chapter summary

This chapter has identified some of the most recurring factors which have inhibited e-government success in developing countries. It has also stressed that it is critical for developing countries to thoroughly evaluate the local context in which they introduce e-government solutions to. Particularly, the infrastructural, organisational, political, socio-economic and human aspects which as indicated, have a significant impact on implementation success. Moving forward, developing countries need to be willing to dedicate time towards strategic planning to make sure that projects are suitable for local conditions. Where shortcomings are identified, appropriate mitigating strategies need to be applied.

# CHAPTER 6: OVERVIEW OF RESEARCH FINDINGS AND CONCLUSION

The objective of this research was to identify the factors facilitating and inhibiting the successful implementation of e-government in developing countries. The reason for this inquiry is because trends show that developed countries have done fairly well in implementing effective e-government while on the other hand, the majority of projects in developing countries have ended in failure.

An extensive literature review of journal articles, government publications and reports was performed to gain an understanding of the factors that influence how well e-government is implemented. The research highlighted that e-government is very nuanced and is influenced by the specific context in which it is implemented, this tends to vary from one country to another. It identified 12 dominant factors which relate to the technological infrastructure, finance, political aspects, the organisational environment of the implementing agency, socio-economic aspects and human related influences.

One of the prominent infrastructural challenges is the digital divide which has left millions of poor communities without access to the internet while more affluent individuals who have reliable and affordable access have been able to reap the benefits of using online platforms to perform routine tasks like paying taxes. This challenge speaks to the impact that e-government can have in either widening or closing the socio-economic gap between the wealthy and poor. This is particularly important because one of the reasons e-government has been promoted for its ability to provide quality public services for all. Another factor that developing countries need to prioritise is the development of a robust regulatory environment that will define how personal data will be collected and used by government agencies. This forms a critical component that influences if the general public feels comfortable using online platforms to share confidential information like identity, medical records and bank details. This links perfectly with another factor- citizen trust. Security risks and particularly the fear of being victim to identity or financial fraud is an issue that has resulted in low utilisation rates of e-government in countries like Zambia, Zimbabwe and Oman. This not only highlights the importance of investing in high quality technological infrastructure but also reinforces the need

for regulations that define how data will be protected to preserve the safety of the public. Secondly, the relationship between the two factors illustrates that e-government success is at times influenced by the interaction between multiple factors.

Another valuable highlight is the influence that resistance to change has on the outcomes of e-government programmes. This is particularly important within government agencies where employees are the primary implementers and everyday users of the systems. The literature revealed that some employees perceive e-government as a threat to their jobs and fear that the technology will make them dispensable. What was of interest was the fact that resistance to change is not a factor that manifests exclusively where e-government is concerned. Rather, it has been identified as one of the longstanding organisational challenges of public administration in general. Other factors which were identified include limited budget allocation for ICT expenditure, low ICT literacy, lack of e-government awareness and GDP per capita. The factors identified support the argument made at the onset of the study which was that e-government development is not just about the public sector purchasing ICT tools and providing services through online platforms. In order for developing countries to experience improved implementation results, they need to consider the variety of contextual factors at play in the country and government agencies. These form a critical part in determining if e-government will be successful. These factors are in essence the prerequisites that developing countries need to take into account during the planning and design stages before pursuing implementation

The review of e-government in developing countries illustrates that although each country has a set of contextual conditions which influence implementation at varying degrees, the primary focus is consistent across regions. In order to ensure better implementation results, developing countries need to dedicate themselves to evaluating the current realities of the environment they are implementing e-government in. This means committing to acknowledging the fundamental challenges that have impacted pre-existing projects and prioritising strategic planning that speaks to these issues prior to pursuing new projects. The similarities in some of the challenges that have been noted also indicate that developing

countries could benefit from engaging in regional partnerships which foster information sharing and knowledge building, a feature that has been lacking in the developing country context. This relates to one of the biggest challenges with e-government literature. The majority of the available research has been based on observations made in developed countries, leaving a gap in the knowledge base for developing, transitional and emerging countries. ICT research in these regions remains at a nascent stage and was a limitation for this thesis.

Outside of e-government arena, this research also carries overarching considerations for public administration reforms in general. Historically, reform measures have always been conceived in the context of developed countries and later introduced to developing countries in an attempt to make public institutions more effective and efficient. However, like other reforms, the patchy impact of e-government once again points to the conclusion that the assumption that reforms are universally applicable and effective despite vast differences in socio-economic, political and cultural should always be challenged. The observations made on e-government development demonstrate that more than often, there is no one-size fits all approach to the issues associated with weak or ineffective public administration. What remains critical is thorough assessment to make sure that proposed reform strategies are in alignment with the context and capabilities of each country.

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