THE INFLUENCE OF ORGANISATIONAL AMBIDEXTERITY ON TRANSFORMATIONAL GOVERNMENT IN ZIMBABWE: TOWARDS A MUNICIPAL INFORMATION QUALITY MODEL

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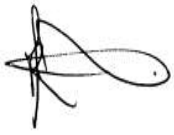
Signature:  Date: 17th February 2021

MAY 2021

DECLARATION

I, Njabulo Ndlovu, hereby declare that this research study titled **"The Influence of Organisational Ambidexterity on Transformational Government in Zimbabwe: Towards a Municipal Information Quality Model"**, submitted for the degree of Doctor of Philosophy in Business Management (PHDB) in the Department of Business Management at the University of Venda, has not been submitted previously for any degree at this or another university. It is original in design and in execution, and all reference materials contained therein have been duly acknowledged.

Student  **Date: 17/02/2021**

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DEDICATION

To my family:

Siphiwe, Tumisang and Desree

You are my inspiration.

Your support carried me through this journey.

God bless you.

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I would like to thank the Almighty God who provided me with strength and wisdom to walk this journey.

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I truly appreciate your wise guidance and insight, I could not have survived without you.

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ABSTRACT

In an endeavour to promote innovativeness and efficient Information and Communication Technologies (ICTs) for Transformational Government (T-Gov), many governments in developing countries have formulated National ICT policies that seek to deploy ICTs to all sectors of their economies. This move requires a push for the creation of an enabling environment to disseminate information to citizens. However, there are indications from prior research which show that Transformational Government is not achieving the outcomes it is touted for. Despite reported failures of Transformational Government projects and constant lack of public value to the detriment of citizens, many governments throughout the world continue to invest large amounts of resources in these government projects. Several issues remain unresolved, for instance, one branch of literature points out that there is lack digital innovation on organisations implementing Transformational Government projects. It is against this background that this study explored the influence of Digital Government Ambidexterity on municipal information quality towards realisation of public value. To this end, a municipal information quality model (MunINFORQUAL) was developed.

Embracing the theory of dynamic capabilities, IS Success theory and public value theory helped in the analysis of the multifaceted nature of organizational ambidexterity and Transformational Government . Using Smart-PLS structural equation modeling technique, exploitative and explorative digital innovation were identified as the factors influencing municipal information quality towards public value amongst municipalities. A cross sectional and snowball sampling approaches was adopted to select the sample, of which the sampling frame was derived from citizens seeking services from those municipalities.

A questionnaire-based survey was used to collect data from participants, and descriptive, inferential statistics and information from focus group interviews were used to analyse the data. The results showed that digital government policy implementation moderated the relationship between ambidextrous digital innovation and municipal information quality, and also municipal information quality mediated the relationship between ambidextrous digital innovation and public value. However, non-significant results were found when testing the mediating effect of information usability in the relationship between ambidextrous digital innovation and public value. Further, the results revealed that information completeness, information relevance and information readability mediated the relationship between ambidextrous digital innovation and public value. Testing the mediating effect of information trustworthiness, results showed partial mediation. The results provides satisfactory evidence that exploitative and explorative digital innovation can influence municipal information quality

positively thereby leading to public value. This study, therefore recommends that managers and policy makers of municipalities should embrace digital innovations in order to enhance public value thereby increasing citizens' participation through full utilisation of digital technologies. This is achievable through implementation of policies that promote effective digital innovation for information quality. Further, this study recommends the establishment of ambidextrous digital innovation within municipalities which will promote effective utilisation of digital technologies as a means of realising the impact of Transformational Government.

Key Words: Ambidexterity, Transformational Government , Public Value, Digital Government.

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LIST OF ACRONYMS

ADSL: Asymmetric Digital Subscriber Line

AVE: Average Variance Extraction

BIQ: Business Intelligence Quotient

DC: Dynamic capabilities

DGA: Digital Government Ambidexterity

D-Gov: Digital Government

EFA: Exploratory Factor Analysis

EGDI: E-government Development Index

EIW: Exploitative Incremental Web portal

ERW: Explorative Radical Web portal

GIS: Geographic Information System

HSDPA: High-Speed Downlink Packet Access

ICP: Information Completeness

ICT: Information and Communication Technologies

IRD: Information Readability

IS Success: Information Systems Theory

ITR: Information Trustworthiness

IRL: Informaton Relevence

IUS: Information Usability

LGA: Local Government Administration

LGC: Local Government Corporation

LTE: Long Term Evolution

SADC: Southern African Development Community

SEM: Structural Equation Modeling

SRMR: Standardised Root Mean square Residual

SSL: Secure Sockets Layer

T-Gov: Transformational Government

PLS-SEM: Partial Least Squares Structural Equation Modeling

POTRAZ: Post and Telecommunication Regulatory Authority of Zimbabwe

OA : Organisational Ambidexterity

PV: Public Value

PDE: Participatory Democracy

PUT: Percieved Utility

PSC: Percieved Security

SOB: Social Benefits

UN: United Nations

ZIMASSET: Zimbabwe Agenda for Sustainable Socio-economic Transformation

2G: Second Generation

3G: Third Generation

4G: Fourth Generation

5G: Fifth Generation

Definition of Key Terms

This research comprises of a number of key concepts namely: digital government, Digital Government Ambidexterity, digital innovation, information quality, Municipal, Organisational Ambidexterity, public value and Transformational Government.

Digital Government	Relates to ICT applications in all facets of operations primarily web-based and mobile Internet applications to improve electronic government information services to citizens, businesses, employees, organisations and government organisations (Papadomichelaki and Mentzas, 2012; Ayantunji, 2016). Digital government is also defined as a collection of mobile applications, open data, social media, internet of things and organisational networks entrenched in the working environment of governments (Gil-Garcia, Dawes, and Pardo, 2018). In the context of the present study, digital government relates to ICT applications in all facets of operations used by governments in the processing, transmission and receiving of information
Digital Government Platform	Relates to digital technologies (web portals) through which governments and their citizens use to communicate and transact within a localised interconnected web that provides information (Henman and Graham, 2019).
Digital Government Ambidexterity	Relates to simultaneous digital innovations which public sector organisations embrace in their quest to create public value (Björses, 2019).This Digital Government Ambidexterity innovation can be realised through public sector's ability to simultaneously exploit existing digital innovations (exploitative incremental digital innovation) and explore new digital innovations (explorative radical digital innovation) (Palm, 2017; Liang, Qi, Zhang, and Li, 2019; Peng, 2019).
Digital Innovation	Relates to the usage of digital technologies in a widespread range of innovations (Hinings, Gegenhuber, & Greenwood, 2018). This includes improving existing products or services, new products, new processes, new services and new platforms. In the same vein, digital innovation is also defined as a process of utilising different digital technologies to improve existing products and services, or produce new ones (Ylinen, 2019). In relation to the current study, digital innovation refers to the process of constantly instituting minor and major innovative improvements leveraged through digital technologies as means of promoting organisation-citizen interactivity.
Information Quality	Is defined as information that meets specifications or requirements from an information perspective suitable for use by information consumers from both providers' and users' perspective (Fath-allah, Cheikhi, Al-qutaish, and Idri, 2014). Alenezi, Tarhini and Masa'deh (2015) suggest that information quality in a contextual perspective, relates to information that meets certain specifications, whereas from a user's perspective, it relates to information that is fit for use by information consumers. Fehrenbacher (2016) and Zaidi (2017) refer to information quality as the quality of outputs which information systems produce and it involves dimensions such as accuracy, completeness and consistency. Information quality relates to information that meets specifications and requirements from both an information and a citizen's perspective
Municipal	Is defined as the urban system of government with powers and authority to make local decisions on matters that affect local communities by mobilising local resources for execution of decisions (Urbans Councils Act Zimbabwe 1983). A Municipal is viewed as a local government system which ensures

	that there is an equitable provision of services to all citizens (Mawela, Ochara, & Twinomurinzi, 2017). Municipal is also understood as that part of local authority established in terms of the Urban Councils Act [Chapter 29:15] whose overall mandate is to govern respective council areas. In the context of the current study, a municipal is taken to mean that urban council system with autonomous powers to make impartial local decisions on matters that relate to all citizens within their jurisdiction for the creation of public value
Organisational Ambidexterity	Is defined as an organisation's ability to both explore new competencies and exploit existing competencies (March, 1991). It relates to the development of innovative capabilities essential to reach a balance between exploitative and explorative innovation by performing both activities simultaneously (March, 1991; Cannaerts, Segers, and Henderickx, 2016; Boukamel and Emery, 2017). Accordingly, Organisational Ambidexterity relates to the management's ability to simultaneously pursue exploitative incremental digital innovations and explorative radical innovations for the success of organisations towards promoting public value.
Public Value	Public value relates to the value created by government through services, laws, regulations and other actions (Mawela et al., 2017). Scholars like Ferlie, Pegan, Pluchinotta and Shaw (2019) view public value as a government's responsibility in producing value for service users and society in order to enhance trust and legitimacy in public decision-making through some democratic processes. In the context of the present study public value relates to all-encompassing benefits accruing through digital government initiatives that fosters organisation-citizen interactivity (citizen-centricity) which treats citizens as co-creators of the systems hence leading to the realisation of Transformational Government.
Transformational Government	Relates to public value based socio-technical processes through which public sector organisations interact with citizens through a collective exploitation of digital technologies for delivery of digital services (Mawela et al., 2017). Scholars such as Kamaruddin and MdNoor (2017) view t-government as a system that transforms government through the promotion of one-stop services thus empowering citizens to become partakers in creating content and integrating back office architecture through effective utilisation of ICTs. However, for this study we shall use the term Transformational Government to refer to the interaction of public organisations and citizens (citizen-centric) through efficient utilisation of interactive digital technologies for public value.
Developing country	There is no uviversally agreed upon definition. It could relate to less developed industrial base, low human development index, income per capita (per person) or a country's gross domestic product (GDP) per capita. For the purposes of the current study, Human development index and income per capita shall apply. This is so because Zimbabwe's literacy levels, digital diffusion rate, digital ubiquity and digital policy, and resembles characteristics of a developing nation like Zimbabwe (CRS Report, 2003; Albiman & Sulong, 2016; UNCTAD, 2019).

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

The era of Transformational Government (T-Gov) and Information Communication Technology (ICT) revolution has seen most public sector organisations invest in digital technologies in an endeavour to better the public service that their citizens and businesses receive (Alraja, 2016; Ayantunji, 2016). This innovative effort has been exacerbated by the fourth industrial revolution which brought new digital technologies at citizens' doorsteps (Björses, 2019). These digital technologies such as web portals, social media and mobile phones, have a potential to influence the relationship between government and citizens by enabling access to varied large amounts of information (da Cruz, Tavares, Marques, Jorge, and de Sousa, 2016; Ylinen, 2019). In view of the aforementioned statement, it is through these digital technologies that governments may create an enabling environment for their citizens to constantly interact with public service providers (Zimbabwe National ICT, 2015:Hinings, Gegenhuber, and Greenwood, 2018).

However, it is documented in the extant literature that there is apathy when it comes to digital technologies utilisation among citizens and municipalities from countries within the Sub Saharan Africa region (Ayantunji, 2016; Silas Formunyuy Verkijika and De Wet, 2018). In view of this, it is suggested that the contributing factor towards less digital technologies utilisation could be associated to lack of ambidextrous digital innovation on the part of municipality governments in these countries.

1.2 Background of the Study

The increased usage of digital technologies globally, has seen most public sector organisations engaging in a digital transformation process in an endeavour to achieve efficiency (Nhema, 2016; Ylinen, 2019). Similarly, it is through the increased usage of digital technologies that there is a potential to deliver sound and efficient public value in the service provided by these organisations (Karkin, Yavuz, Cubuk, and Golukcetin, 2018). Li and Feeney (2014), Mahmood, Weerakkody and Chen (2018) and Hinings et al. (2018), also affirm that digital technologies initiatives have been found to be an influential and effective method of delivering the much sought after digital innovation in government organisations. Digital innovation relates to the use of digital technologies in a wide range of innovations (Hinings et al., 2018). However, scholars suggest that the use of digital technologies also has the potential

to enhance interactivity and information dissemination to citizens, thereby promoting public accountability. Further, through digital innovation, citizens can expect to receive quality information from municipalities thereby promoting Transformational Government initiatives such as the interactive web-based citizen support system.

Liste and Sørensen (2015) and Lember, Kattel and Tõnurist (2018) contend that there has been great penetration with regard to digital technologies. The increased use of digital technologies in the public sector within the last decade, has brought about new digital innovative approaches use in the processing of information. It is against this background that scholars such as Smith and Umans (2015), Cannaerts, Segers, and Henderickx (2016) and Kobarg, Wollersheim, Welpe and Spörrle (2017) suggest that part of the innovative approaches that can promote Transformational Government requires that organisations become ambidextrous. Ambidexterity is defined by scholars such as March (1991), Heeks (2006), Palm (2017), Alghamdi (2018), Barrutia and Echebarria (2019) and Nowacki and Monk (2020) as 'an organisations' ability to simultaneously pursue exploitative incremental innovations such as refinement, extension of existing competencies, technologies or processes and explorative radical innovation as means of enhancing the quality of digital innovation initiatives through continuous searching and experimentation with new technologies'.

The ability of an organisation to simultenously handle exploitative and explorative innovation is refered to as ambidexterity (Rosing and Zacher, 2017; Peng, 2019; Helbin, 2019). Therefore, at an organisational level, ambidexterity seems to be not only a significant antecedent of innovation, but it also deals with digital innovation's exploitative and explorative tension (Heeks, 2006; Preda, 2014; Alghamdi, 2018). For the purpose of this study, Digital Government Ambidexterity with specific focus on municipal digital government platform exploitative and explorative innovation are used to measure the concept of Organisational Ambidexterity. Digital government platform exploitative and explorative innovation is further explained by its non-interactivity (exploitative) and interactivity (explorative) (Heo, 2007). Further, the non-interactive and interactive digital government platform is ascertained or addressed from a content analysis perspective (Heo, 2007; Kim and Kuljis, 2014).

Organisational management literature holds that ambidextrous organisations tend to succeed in the long run in a dynamic environment (Alghamdi, 2018). This is so because such organisations would be aligned and efficient to the present business environment while at the same time remaining adaptable to future changes. Palm (2017) and Lember, Kattel and Tõnurist (2018) contend that maintaining a relationship between exploitative and explorative

innovation is not easy and poses a challenge for every organisation to strike an appropriate balance between the two practices (Barrutia and Echebarria, 2019).

Notwithstanding the aforementioned arguments, literature further notes that some public sector organisations from developed countries exhibit varying stages of ambidextrousness, as some either become more exploitative and less explorative whereas some fully embrace both exploitative and explorative innovations. A scenario which is yet to become a reality in most public sector organisations from a developing country such as Zimbabwe (Lember, Kattel, and Tõnurist, 2018). Kobarg, Wollersheim, Welpe and Spörrle (2017) point out that despite a plethora of research on Organisational Ambidexterity, our understanding remains limited as to how public sector organisations such municipalities develop ambidextrous contexts and the drivers of those contexts.

Other than organisations becoming ambidextrous, Lupilya and Hun (2015) observe the need for governments and municipalities to develop innovative digital government policies to enable organisational stability and survival in the long run. In their discussion, the scholars Lupilya and Hun (2015) further argue that some municipalities still lag behind in developing digital government policies as is demonstrated by failing digital government and Transformational Government projects in Sub-Saharan Africa region (Nhema, 2016; Mawela, Ochara, and Twinomurinzi, 2017). This is largely attributed to a lack of sound digital government policies. Lastly, pointing to the importance of digital government policies, studies suggest that research in this field should be encouraged to investigate why some results on innovative digital government policies remain inconsistent (Heeks, 2006; Lupilya and Hun, 2015).

Embracing Transformational Government enhances efficiency, productivity, flexibility, accessibility and speeds up information flow in government agencies (Robbins, Mulligan, and Keenan, 2015). In support of this statement, Abu-Shanab and Bataineh (2014), Porumbescu (2017) and Kobarg, Wollersheim, Welpe and Spörrle (2017) assert that the embracement of digital innovation has ensued efficient management of public sector information, providing sound service delivery and transparency to the satisfaction of citizens. In the same vein, literature shows that by embracing digital innovation, citizens have an option of leveraging on the power of digital technologies so as to experience speedy and effective digital service delivery such as online bill payment (Shambare, 2012; Dombeu and Rannyai, 2014; Palm, 2017). In consensus with this view, Abu-Shanab and Bataineh (2014) and Hinings et al. (2018) advance that fully embracing digital technologies and digital innovation, may increase efficiency, improve quality of service and credibility to organisations from the citizens' perspective. Consequently, it may perhaps work as an effective tool in controlling revenue and

taxes collection and as a result reduce costs associated with the traditional manual systems. Moreover, these services will become accessible to citizens beyond public sector's brick and mortar structures (Roengtam, Nurmandi, Almarez, and Kholid, 2017; Gieske, George, Meerkerk, and Buuren, 2019).

For municipalities to achieve efficiency, increase public value and adapt to the changing environment, it is convincing that there is need to focus towards Transformational Government (Kamaruddin and MdNoor, 2017; Lindgren and Van Veenstra, 2018). Scholars have highlighted that the Transformational Government phase is the highest level of digital government. Despite the accelerated development of digital government, some countries from the developing world still experience a slow-rate move towards Transformational Government (Lindgren and Van Veenstra, 2018). For that reason, Lindgren and Van Veenstra (2018) contend that this calls for digital innovation within public sector organisations like municipalities in order to achieve Transformational Government.

Kamaruddin and MdNoor (2017) note that Transformational Government is citizen-centric and involves digital technology platform enabled changes in the functions, structures, processes, internal and external relationship of governments in an endeavour to create public value. This implies that the focus on Transformational Government works towards enhancing the citizens' chances of gaining efficient, adequate and timely access to data, information sharing and ultimately its dissemination within and outside government services (Kamaruddin and MdNoor, 2017; Alshetewi, Alturise, and Karim, 2018). Kamaruddin and MdNoor (2017) and Alshetewi et al. (2018) further argue that Transformational Government is encompassing due to its multi-channel access, reengineering back office processes, and the use of digital technologies as the key components (Roengtam et al., 2017; Hinings et al., 2018).

While the aforementioned Transformational Government initiatives have good intentions and present good opportunities for municipalities to enhance and improve their operations, regrettably, it would appear that there is a general lack of effective utilisation of digital technologies to enhance public value by both public sector and citizens in the context of developing countries (Shambare, 2012; Mawela et al., 2017). Notwithstanding the obvious potential benefits presented by the adoption and full usage of digital technologies, these innovative initiatives seem to be less realised in Zimbabwean municipalities.

Surprisingly, the aforementioned innovative initiatives are against a background of high digital government diffusion rate and ubiquitous digital technologies seen as Transformational Government among Zimbabwe's population (Dube and Gumbo, 2017; Potraz, 2019). The Zimbabwe National Policy for Information and Communication Technology (2015) reports that

by the end of 2014, the uptake and usage of digital technologies greatly increased with a reported mobile penetration reaching 90% and an Internet penetration reaching 45% (Nhema, 2016). In view of these milestones, it then becomes important to set forth recommendations which may possibly improve Transformational Government (Danila and Abdullah, 2014; Ayantunji, 2016; Mawela et al., 2017). In like manner, extant literature argues that municipalities in developing countries are characterised by slow to moderate digital innovation changes thereupon calling for sequential ambidexterity on the quality of information provided through municipal digital government platforms (Smith and Umans, 2015; Boukamel and Emery, 2017; Palm, 2017; Hinings et al., 2018).

1.3. Context of the Study

Irrespective of the obvious benefits generated through proper application of Transformational Government and its initiatives within the Zimbabwean public sector; it is noteworthy that the usage of government digital technologies has been relatively low (Ayantunji, 2016; Sigwejo and Pather, 2016; Nhema, 2016). Similarly, Osei-Kojo (2017) asserts that despite the idea of novel digital technologies heralding a new beginning for Transformational Government, many Transformational Government initiatives particularly in Zimbabwe's municipalities remain weak and less innovative unlike in some of the cities from Southern Africa countries such as Johannesburg and Cape Town in South Africa (Verkijika & De Wet, 2018). These cities have continuously embraced digital innovation, something which has earned them names such as "smart and networked" cities. In the aforementioned South African cities, citizens are informed of events, incidents and advised on current balances in real time. This status quo, might be pointing to the need for government organisations like municipalities to consider Digital Government Ambidexterity in the quest to redress Transformational Government initiatives.

Furthermore, Kaliannan, Puteh, and Dorasamy (2014); Nhema (2016); Osei-Kojo (2017) and Mawela et al. (2017) suggest that some of the dominant factors that threaten full embracement of Transformational Government initiatives in municipalities from Southern Africa countries are related to a lack of trust by the public on the electronic information obtained through digital technologies. Correspondingly, Nguyen (2014); Dooren and Ryzin (2017) and Mahmood, Weerakkody and Chen (2018) hold the view that in some cases, poor administration of Transformational Government poses a negative bearing on the provision of quality information to citizens. In support, Liste and Sørensen (2015) and Verkijika and De Wet (2018) suggest that a lot needs to be done in order to improve the information quality by public sector organisations in order to enhance public value. For example in Zimbabwe, according to the Auditor General Zimbabwe report (2016), some municipalities in Zimbabwe failed to fully utilise

the Business Intelligence Quotient (BIQ) system developed modules and instead they continued to maintain most of their accounts in Microsoft Excel. The Business Intelligence Quotient (BIQ) system is an Enterprise Resource Planning system which has the potential of integrating all the information at the institution for ease of use and decision making, and offers real-time interactive process with citizens (Auditor-General Zimbabwe, 2016). In some instances, these municipalities would upload incorrect statements, bills and budget information with distorted figures to the detriment of citizens' accounts. These acts could suggest that municipalities in Zimbabwe still face challenges associated with digital innovation limitations.

In view of the foregoing discussion, this current study was undertaken to understand how Organisational Ambidexterity influences Transformational Government in the context of Zimbabwean municipalities. To this end, there is a dearth of documented empirical evidence from developing countries on the proposed topic.

1.3.1 Government structure

As enshrined in its constitution, Zimbabwe is regarded as a constitutional democracy and has three tiers of government. The three tiers or levels are: the National government, Provincial government (Metropolitan cities) and Local government which consists of urban and rural councils (Constitution-of-Zimbabwe-Amendment, 2013). These different levels of government have different responsibilities. The National government being the first tier in the hierarchy, ordinarily focuses on establishing and regulating the legal framework and politics of the nation. The Provincial government or Metropolitan cities is the second tier of government, and is responsible for an equitable distribution of local and national resources in matters of local governance. This includes local service delivery to citizens within their jurisdiction (Jonga, 2016; Chigwata and Visser, 2018). Local government, as the third tier is responsible for service delivery to citizens within its jurisdiction.

There are ten provinces in Zimbabwe namely: Harare Metropolitan province, Bulawayo Metropolitan province, Manicaland province, Mashonaland West province, Mashonaland East province, Mashonaland Central province, Masvingo province, Midlands province, Matabeleland North province and Matabeleland South province. Each province is under the administration of a resident provincial governor. Under Metropolitan provinces, there are cities consisting of the Mayor who assumes the role of a chairperson whereas, local government—the third tier of government—consists of both urban and rural councils empowered to govern activities within their own jurisdiction (Constitution-of-Zimbabwe-Amendment 2013). These are managed by the Mayor or Chairperson who is an elected member.

Government in Zimbabwe faces several challenges associated with service delivery such as lack of citizen-centric orientation from the public service provider and a slow response rate to citizens' request. This study specifically focuses on ambidextrous digital innovations towards enhancing Transformational Government as a way to improve municipal responsiveness to citizens.

1.3.2 Municipalities in Zimbabwe

The third and last tier of government is the Local Government which consist of urban and rural councils under the leadership of publicly elected members and presided over by a mayor or council chairpersons (Constitution-of-Zimbabwe-Amendment 2013). These organisations are mandated by the constitution and other subsidiary legislation to govern their own affairs and people. Thus, Local Government organisations were established to promote economic development through the provision of infrastructure and social services (Jonga, 2016). In total, Zimbabwe has 32 urban councils made up of city councils, municipalities, towns, local boards and 60 rural district councils.

Within Local Government, the management structure is also a two tier system comprising of a policy making organ and an executive structure. As postulated in the local government subsidiary pieces of legislation, the policy making organ comprises of councils and committees whereas the executive consists of the Town Clerk or Chief Executive Officer, head of sections and support staff. Given their responsibility of promoting economic development and service provision, local governments through their administrators are also responsible for collecting revenue in the form of rates and taxes from citizens in exchange for service (Gideon and Alouis, 2013;Jonga, 2016).

Local governments in Zimbabwe face a number of challenges in their endeavour to achieve their visions and missions. Part of the challenges bedevilling local governments particularly municipalities include increasing demand for these organisations to realise the impact of Transformational Government (Zinyama and Nhema, 2016; Mawela et al., 2017). From the citizens' perspective, municipalities are expected to become innovative through the promotion of efficient digital technologies for service delivery (Nhema, 2016; Dube and Gumbo, 2017). They are quasi-government, free to commission and manage their own data repositories - a scenario which may promote Transformational Government. Lately, this Transformational Government process has become the driving force of innovation, efficient and citizen-centric services. Meaning that services need to be redesigned around the needs of citizens. Achieving Transformational Government may include the provision of a digital government platform that promotes citizen-municipal interactivity (Kamaruddin and MdNoor, 2017). Despite the

aforementioned benefits of Transformational Government, Kayisire and Wei (2016) and Mawela et al. (2017) bemoan the relatively slow rate of digital technologies utilisation by municipalities from the Sub-Saharan Africa region.

1.4 Problem Statement

In an endeavour to address government digital inefficiencies and citizens' apathy towards digital government platform utilisation, the government of Zimbabwe formulated and rolled out a National ICT policy whose main thrust was the deployment and effective utilisation of digital technologies to all sectors of the economy (Zimbabwe National Policy for Information and Communication Technology, 2015). The National ICT policy was meant to promote innovativeness, dynamic and efficient digital government towards Transformational Government. Through Transformational Government initiatives, an enabling environment for organisation-citizen interaction through responsive digital technologies was expected to be created.

The Zimbabwe National ICT policy came after other unsuccessful reforms such as Integrated Results Based Management (IRBM) and Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) that were meant to stimulate the economy through social and technological transformation but failed to do so. However, despite all the reforms attempted by the country to stimulate its economy, it is not surprising that Zimbabwe's global e-government development index (EGDI) rankings are declining as presented in Table 1.1 (United Nations, 2017; 2018). Specifically, from a global perspective, the Department of Economic and Social Affairs (2016) reported that in 2014 Zimbabwe was ranked 126 out of 193 member states, and in 2016, it was ranked 134 and in 2018 it further declined to 146 (United Nations, 2017; 2018).

Zimbabwe's EGDI decline can further be compared through the Southern African Development Community (SADC) countries' perspective—viewing SADC's EGDI through the lens of Global EGDI rankings. The indications are that out of the fourteen SADC countries, countries such as Lesotho, Madagascar and Zimbabwe's e-government development index has been on a downward trend since 2014. In sharp contrast, other SADC countries like Mauritius and South Africa are ranked as the top two for this regional organisation and top ten among other nations in Africa (United Nations, 2014; Ayantunji, 2016; United Nations, 2017; 2018). Nonetheless, Zimbabwe has been experiencing a decline from both the global and SADC rankings since 2014 to 2018. Astonishingly, Zimbabwe's EGDI is declining despite a steady increase of up to 94% mobile phone penetration and 60% Internet penetration towards the middle of year 2020, according to the Postal and Telecommunications Regulatory

Authority of Zimbabwe (Potraz, 2016; Potraz, 2017; Potraz, 2018; Potraz, 2019; Potraz, 2020). In addittion, as reported in POTRAZ report, mobile internet and data traffic increased by 2.8% to record 6,661 terabyte (TB) from 6,489 terabyte (TB), whereas international Internet bandwidth capacity also increased by 8.2% to record 124,627 megabits per second (Mbps) from 115,212 megabits per second (Mbps) (Potraz, 2020). For instance, in reference to the country's population utilising digital technologies, active mobile penetration increased to 12.9 million, whereas data and Internet services increased to 8.7 million by end of 2018. Notably, the reported constant increases in mobile and Internet usage are taking place in an environment that is characterised by persistent economic depression. Nevertheless, all this is against a total estimated population of 14 million as per the ZIMSTAT projections (Zimbabwe National Statistics Agency Report, 2012 ; Potraz, 2019).

Table 1.1: Zimbabwe's EGDI

COUNTRY	**2014**		**2016**		**2018**	
	Global	SADC	Global	SADC	Global	SADC
Angola	140	7	142 ↓	9 ↓	155 ↓	9
Botswana	112	3	113 ↓	3	127 ↓	4 ↓
DRC	183	14	180 ↑	14	176 ↑	14
Lesotho	153	9	154 ↓	10 ↓	167 ↓	11 ↓
Madagascar	155	10	163 ↓	11 ↓	170 ↓	12 ↓
Malawi	166	13	166	12 ↑	175 ↓	13 ↓
Mauritius	76	1	58 ↑	1	66 ↓	1
Mozambique	164	12	172 ↓	13 ↓	160 ↑	10 ↑
Namibia	117	4	125 ↓	4	121 ↑	3 ↑
South Africa	93	2	76 ↑	2	68 ↑	2
Swaziland	136	6	136	8 ↓	141 ↓	7 ↑
Tanzania	146	8	130 ↑	5 ↑	139 ↓	6 ↓
Zambia	163	11	132 ↑	6 ↑	133 ↓	5 ↑
Zimbabwe	126	5	134 ↓	7 ↓	146 ↓	8 ↓

Key: Arrows denote changes in Global and SADC rankings.

Source:(United Nations, 2014; 2017; 2018)

In consensus with the aforementioned arguments, studies carried out by Ayantunji (2016), Nhema (2016), Kayisire and Wei (2016), Dube and Gumbo (2017) and Mawela et al. (2017)

point to a lack of effective utilisation of digital technologies by both parties i.e. the citizens and organisations from the SADC countries which can largely be attributed to failure by digital innovation to influence the nature of Transformational Government (Roengtam et al., 2017). It is against this background that it became imperative for this research to explore the influence of Digital Government Ambidexterity as a predictor variable on municipal information quality subsequently leading to public value.

1.4.1 Global and SADC countries EGDI rankings overview

In an effort to get a more comprehensive and objective state of digital government development among the Southern African Development Community (SADC) countries, the United Nations e-government rankings was preferred. The preference was based on the fact that it provides an objective and balanced valuation across nations, and the rankings are derived right straight from the e-government development index (EGDI) (Ayantunji, 2016; United Nations, 2017). Further, Ayantunji (2016) states that e-government development index is a composite measure of three dimensions namely, provision of online services, telecommunication connectivity and human capital index. It is a dependable index that has been extensively adopted in many studies to map a country's level of e-government maturity, something considered significant towards realisation of Transformational Government.

As presented in Table 1.1; the indication is that in terms of global and SADC e-government development index (EGDI) rankings, Zimbabwe's position has been declining. The full potential of Transformational Government is yet to be realised in Zimbabwe municipalities as their environment is still characterised by low utilisation of digital government platforms from both the organisations and citizens. Scholars such as Alenezi, Tarhini and Masa'deh (2015) Kamaruddin and MdNoor (2017), Mawela, Ochara and Twinomurinzi (2017) and Verkijika and De Wet (2018) bemoan the lack of digital government utilisation which is attributable to citizens' lack of trust for their municipalities, and the state of ICT infrastructure to be the greatest inhibitors of the widespread diffusion of digital services in a developing country such as Zimbabwe.

The latest statistics corroborate later findings, particularly by Ayantunji (2016) and United Nations (2017; 2018), that digital government growth rates in Africa remain largely depressed, notwithstanding the slight global (EGDI) improvement between 2016 and 2018. For instance, Africa's region e-government development index (EGDI) average increased from 0.2880 in 2016 to 0.3420 in 2018 which represents the third highest regional improvement in EGDI rankings. Out of the 54 African countries, only four- (i.e., Mauritius, Tunisia, Seychelles and South Africa) have EGDI values above the world average of 0.549 (United Nations, 2017;

2018). To this end, some significant EGDI ranking improvements were witnessed in SADC countries such as the Democratic Republic of Congo, Zambia, Tanzania, Namibia and Mozambique.

1.5 Research Questions

The main research question that this study sought to address was:

To what extent does Digital Government Ambidexterity influence Transformational Government in the context of Zimbabwean municipalities?

To address the primary research question the following specific research questions were posed:

i. How does exploitative incremental digital innovation influence municipal information quality?
ii. How does explorative radical digital innovation influence municipal information quality?
iii. How does municipal information quality influence the relationship between Digital Government Ambidexterity and public value?
iv. How does exploitative incremental digital innovation influence public value?
v. How does explorative radical digital innovation influence public value?
vi. How does digital government policy implementation influence the relationship between Digital Government Ambidexterity and municipal information quality?

1.6 Aim and Objectives

The aim was to examine the influence of Organisational Ambidexterity on Transformational Government and the development of a specific municipal information quality model for enhancing public value in the Zimbabwean context. Thus, the main objective of this study were:

To assess the extent to which Digital Government Ambidexterity influences Transformational Government in the context of Zimbabwean municipalities.

The specific objectives that guided the researcher in addressing the secondary research questions were:

i. To establish the influence of exploitative incremental digital innovation on municipal information quality.
ii. To determine the influence of explorative radical digital innovation on municipal information quality.

iii. To establish the mediating influence of municipal information quality on the relationship between Digital Government Ambidexterity and public value.
iv. To ascertain the influence of exploitative incremental digital innovation on public value.
v. To determine the influence of explorative radical digital innovation on public value.
vi. To establish the moderation influence of digital government policy implementation on the relationship between Digital Government Ambidexterity and municipal information quality.

1.7 Significance of the Study

This research hopes to contribute to the advancement of the implementation of the Zimbabwe National Policy for Information and Communication Technology which advocates for embracement of Transformational Government initiatives to enhance public value. The policy document provides strategic direction on how ICTs development and application will enable socio-economic transformation (Zimbabwe National Policy for Information and Communication Technology, 2015). The policy also leverages the strength and opportunities available for the country. Lupilya and Hun (2015) and Mawela et al. (2017) advocate for the need to accelerate the embracing of innovative digital government policies from developed countries. These scholars further posit that many African countries fail to fully embrace Transformational Government initiatives such as digital technologies utilisation due to lack of digital government policy implementation, and for those organisations that have adopted these initiatives, it is either carried out on an ad hoc basis or rarely applied. Moreover, it is suggested that digital government policy implementation would be an ideal measure to take because it may promote digital innovativeness within organisations. Practically, the researcher hopes that the findings from this study will likely help managers of municipalities implement and develop efficient digital innovations within their organisations that can lead to Transformational Governments.

Furthermore, the researcher of this study hopes that the findings from this empirical study will likely be useful to managers of municipalities, especially those in developing countries, as strategies that can be implemented so as to promote digital innovativeness and thus lead to Transformational Government. Such strategies include transforming municipalities with a view to making them realise Digital Government Ambidexterity. This research study also sought to fill a gap in the literature pertaining to specific municipal information quality factors that can promote public value for developing countries such as Zimbabwe.

1.8 Contribution to the Body of Knowledge

This research study anticipated to respond to the gaps marked in previous studies on Transformational Government such as a consideration and extension of knowledge on quality dimensions affecting information, in order to fully develop guidelines when instituting digital innovation (Papadomichelaki and Mentzas, 2012). To that effect, this study suggests the adoption of a municipal information quality (MunINFORQUAL) model that best fits organisations such as municipalities. Research on Organisational Ambidexterity in the public sector has recently gained momentum and by proposing Digital Government Ambidexterity as a predictor influencing Transformational Government it is expected that this will bring about new grounds for discussion (Boukamel and Emery, 2017; Alghamdi, 2018).

This is so because scholars such as Boukamel and Emery (2017), Kobarg, Wollersheim, Welpe and Spörrle (2017) and Palm (2017) indicate that despite having a plethora of research on Organisational Ambidexterity, many of them are qualitative in nature. A few of these studies carried out on the public sector are quantitative in nature and they focused on investigating Organisational Ambidexterity, either as an outcome or as a mediator. Comparatively, this research study becomes unique in the sense that it investigated the influence of Digital Government Ambidexterity as a predictor on Transformational Government focusing on municipalities in Zimbabwe.

Uniquely, a combination of Dynamic capability (DC), IS Success theory (IS) and Public value theory (PVT) were used and presented a different picture on the concept of Organisational Ambidexterity and Transformational Government. In addition, the current research seeks to contribute to the body of knowledge by providing policy makers and decision makers with a framework that they can use as a guide while manipulating and customising digital technologies in an endeavour to embrace Transformational Government initiatives.

1.9 Delimitation of the Study

This research was limited to the Zimbabwean context in the following municipalities: City of Bulawayo which is a metropolitan, Gweru City Council and Victoria Falls Municipality. Given that Zimbabwe municipalities are dispersed across ten provinces, trying to focus on all proved to be a mammoth task due to time and budget constraints, hence the researcher employed multi-stage cluster random sampling technique to come up with the study location. Each cluster constituted of a metropolitan, city council and municipality. As such, three municipalities were randomly selected by means of the Random Number Generator software (Coleşa, Tudoran, and Bânescu, 2008; Ghersi, Parakh, and Mezei, 2017).

1.10 Chapter Outline

This study comprises of eight chapters. Chapter 1 provides a detailed introduction and background of the study with a brief overview of the purpose of digital technologies, Organisational Ambidexterity and Transformational Government. The chapter further presents the significance of the study, the context of the problem, followed by the context of the study highlighting setbacks associated with municipalities and the need for Transformational Government. The chapter also includes an overview of the research problem, presentation of primary and specific research questions, research objectives and research hypotheses, the significance of the study, the study's contribution to the body of knowledge, delimitations of the study and a definition of the key concepts.

A review of the existing literature is provided in chapter 2, 3 and 4. Chapter 2 focuses on reviewing the literature on digital transformation. The concept of Transformational Government is defined together with ICTs perspectives and a brief discussion of the concept of digital government. The chapter includes a discussion of the notion of citizen-centricity—a concept which promotes interactivity between municipalities and citizens, benefits of Transformational Government towards the creation of public value. The chapter focuses on linking IS Success and Public value theories to Transformational Government. A summary of Transformational Government is presented viewed through the lens of municipal information quality and the creation of public value.

The concepts of Organisational Ambidexterity and Digital Government Ambidexterity are defined in chapter 3, along with a detailed assessment of the state of municipal digital technologies in Zimbabwe. The chapter further presents Digital Government Ambidexterity examined through the lens of exploitative and explorative innovation. The two concepts of exploitative and explorative innovation explain the type of incremental digital innovation and radical digital innovation that municipalities should adopt in an endeavour to promote information quality and public value towards realising the impact of Transformational Government. Lastly, the study presents the theory of dynamic capabilities which is engrained in the streams of Organisational Ambidexterity.

Chapter 4 discusses the research framework focusing on theoretical underpinnings of Digital Government Ambidexterity and information quality for public value. The model explains information quality dimensions more specifically in the context of municipalities. Such information quality dimensions include information usability, information completeness, information readability, information relevance and information trustworthiness. Literature on public value was also reviewed, leading to the development of the model used to explain the

concept. A summary of municipal information quality model is presented with the aim of linking the chapter to Digital Government Ambidexterity and public value creation.

Chapter 5 focuses on the research methodology and research design and strategy that was used in the study. Positivism, the selected paradigm for this study focused on descriptive and cross sectional designs. Multistage sampling was used to determine municipalities to be considered for this current study.

Chapter 6 focuses on data presentation and analysis. Multiple regression analysis was used to examine how Digital Government Ambidexterity influenced Transformational Government towards public value. SMART-PLS software for statistical analysis was used for the data analysis. Exploratory factor analysis and structural equation modeling were carried out using PLS-SEM in order to establish specific constructs and item relationship.

Chapter 7 mainly focuses on evaluating the research framework. This was achieved through the validation of municipal information quality model (MunINFORQUAL) and an assessment of the moderating role of digital government policy implementation. In validating the moderating role of digital government policy implementation, the study used data collected through focus group interviews. That was followed by the presentation of the final study framework based study results.

Chapter 8 focuses on conclusions and recommendations. The section starts by presenting an assessment of the research study and contributions, reflecting on sub-research questions. Contribution to knowledge section was also presented focusing on the following factors; theoretical, methodological and practical. Lastly, the presentation of study limitations and suggestions for future research.

CHAPTER TWO

DIGITAL TRANSFORMATION IN THE PUBLIC SECTOR

2.1 Introduction

This section focuses on reviewing the literature on Transformational Government. The concept of Transformational Government is defined together with the concepts of digital technologies and digital government. The section includes a discussion on citizen-centricity a concept which promotes interactivity between municipalities and citizens; and benefits of Transformational Government towards the creation of public value. In this section the researcher discusses digital transformation in the context of a developing country such as Zimbabwe. To enhance understanding of the Transformation Government concept, Information Systems (IS) Success model by DeLone and McLean (2016), and public value theory by Talbot (2008) and Marek (2016) were used. The IS Success model focuses on digital innovation of digital government platforms towards realising public value. Whereas public value theory focuses on ever changing societal values embedded within a collaboration of diverse stakeholders driven by digital government platform utilisation (Lindgren and Van Veenstra, 2018). The concept of Transformational Government is then followed by the study's conceptual framework and the significance of digital government policy. scholars

2.2 Understanding Digital Transformation

The influence of digital transformation has seen a rapid increase in the usage of the digital technologies the world over. The fourth industrial digital revolution has placed digital transformation at the epicentre of discussion amongst policy makers and government agencies because of its potential impact on Transformational Government (Gastaldi, Appio, Corso, and Pistorio, 2018). Undeniably, if digital transformation initiatives are appropriately implemented, they can improve the quality of municipal information thereby presenting much expected benefits to citizens (Lindgren and Van Veenstra, 2018). However, from the extant literature, it appears that transformation is a phenomenon that is yet to be realized in most public sector organisations especially those in the developing countries (Weerakkody, Kapoor, Balta, Irani, and Dwivedi, 2017; Mahmood et al., 2018; Karkin et al., 2018). In view of the foregoing sentiments, scholars contend that despite this transformation having been achieved by organisations from the developed countries, its realization by organisations from developing countries' public sector still appear, to some extent, difficult to achieve (Alshetewi et al., 2018). This study suggest that it could be associated to the need for interrelation of

information systems and challenges associated with policy constraints. Further, a lack of involvement of citizens on transformational initiatives is another factor that poses a challenge in the administration of public sector organisations from developing nations.

Public utilisation of digital government platforms has been found to be instrumental in promoting transformation in the administration processes of organisations in the context of municipalities in developed countries (Alshetewi et al., 2018). In spite of the acknowledged importance and successes of digital government led transformation in some parts of the world, consensus by several scholars has indicated that the situation may be different in the context of developing countries (Kamaruddin and MdNoor, 2017; Mawela et al., 2017; Alshetewi et al., 2018; Mahmood et al., 2018). For instance, Verkijika and De Wet (2018) have highlighted that the deployment of digital government led transformation remains poor especially in governments of developing nations, for example countries from Sub-Sahara Africa. Similarly, Alshetewi et al. (2018) reveals that digital government led transformation programmes did not present much expected Transformational Government due to lack of interoperability in the public sector. Through Transformational Government governments are expected to facilitate more centrally connected and citizen centric digital services. These scholars relate interoperability to the interrelation of information systems and digital services within departments and organisations (Alshetewi et al., 2018). Literature further states that, interoperability needs to be addressed first before organisations can promote digital government driven transformation that is citizen-centric.

Nevertheless, Teng-Calleja et al. (2017) observe that the concept of Transformational Government has seen most of public sector organisations such as municipalities pursuing courses of action such as globalisation and devolution in an endeavour to keep abreast with business contemporary trends. For instance, some municipalities from developed countries are working with similar organisations from other nations in promoting trade, organising resources and through exchange of ideas and skills towards building capacities (Lindgren and Van Veenstra, 2018) while at the same time, decision making is cascaded downwards to involve citizens through the process of engagement. Arguably, the process of engagement and involvement ultimately promotes transparency, efficiency and good governance, towards realising the impact of Transformational Government.

2.2.1 Digital Technologies in the Public Sector: A global perspective

In a study that was conducted at a district level in India, Malik et al. (2017) observe that digital technologies were found to be essential drivers for effective and efficient communication between organisations and citizens. Not only that, they were also found to be essential. The

scholars also viewed digital technologies as key to any government transformational agenda, capable of delivering information quality and integrated citizen-centric services (Kar, Ilavarasan, Gupta, Janssen, and Kothari, 2019). In the same vein, this suggest that organisations stand a better chance of promoting good relationships, trust and transparency through proper deployment and utilisation of organisational digital technologies. However, the scholars focused mainly at the accessibility and usability of digital technologies such as municipal web portals at a district level, with specific attention being on digital innovation, that is, the designing of user-friendly and easy to use digital government platforms (web portals) by all citizens (Kar et al., 2019). Nevertheless, they did not focus at the state of digital government platforms in terms of digital innovation for interactivity.

In a study conducted in Spain, Serrano-Cinca and Muñoz-Soro (2018) hold the view that digital technologies should be regarded as a vehicle through which transparency and e-democracy can be promoted. There has been an upsurge of citizens connecting to municipal digital government platforms such web portals, and these were found to be the most common channel through which citizens communicate with governments. In consensus, Acosta-vargas, Luján-mora, and Salvador-ullauri (2017) observe that through proper and effective deployment of digital technologies governments may benefit through citizen involvement, and consequently enhance efficiency and user convenience.

Apart from Spain in Europe, countries such as Denmark, Belgium and Sweden are amongst the leading nations which have made great strides in embracing digital technologies towards becoming Transformational Governments (Cannaerts et al., 2016; Palm and Lilja, 2017; Nielsen and Persson, 2019). Conversely, the scholars argue that despite some web portals being of good quality especially in some European nations such as Denmark, Belgium, and Sweden, concerns have arisen that at times it is not easy to find municipal information through different search engines (Serrano-Cinca and Muñoz-Soro, 2018; Hinings et al., 2018). Further, at times municipal information on digital government platforms would not be what the citizens want, a phenomenon that works against digital transformation.

Digital technologies are also viewed as drivers of organisational change, in the attempt to modernise and improve citizen services (Castelnovo and Sorrentino, 2018). This suggest that, digital technologies may present citizens with a one-stop public digital service that integrates entirely the customer interface. Similarly, in a study conducted by Gil-Garcia, Dawes, and Pardo (2018) the scholars extended the sentiment that it was an unimaginable scenario in this day and age to find a public sector organisation that does not involve extensively the use of digital technologies. This is because the use of digital technologies present citizens with

efficient digital information which promotes transparency and an effective government. Moreover, the use of digital technologies enhances dissemination of information concerning the activities of the organisation, and by so doing improve citizens understanding and trustworthiness of government performance (Porumbescu, 2017). Other than providing efficiency through information quality, proper deployment of digital technologies in the public sector may also help in the detection and reduction of corruption. This is so because, digital technologies provide a mechanism by which citizens can monitor the activities carried out by managers from these government organisations.

Apparently, with the ubiquity and simplicity associated with the use of digital government platforms, many governments all over the world are making great use of these digital government platforms to disseminate diverse forms of information to citizens (Porumbescu, 2017). In fact, such great usage of digital technologies may potentially promote a sound relationship between a government and its citizens, while at the same time influencing full utilisation of these digital government platforms. Moreover, the use of digital technologies in public sector organisations may be viewed as instrumental towards promoting accountability, transparency, service delivery, trust and citizen participation (Manoharan, Zheng, and Melitski, 2017).

2.2.2 Digital Technologies in the Public Sector: An African perspective

Several scholars have raised concerns at the ineffectiveness of utilisation of digital government platforms in some countries from the SADC region such as Democratic Republic of Congo, Lesotho, Madagascar, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe (Kayisire and Wei, 2016; Nhema, 2016; Osei-Kojo, 2017; Tsokota, 2017; Mawela et al., 2017; Verkijika and De Wet, 2018; Olumoye and Govender, 2018). Further, these scholars have indicated that the said digital government platforms were falling far short meeting citizens' Transformational Government expectations. Given the growing number of studies focusing on Transformational Government and its digital failures thereof, leaves one wondering about the extent of the impact that these digital technologies can present. Moreover, these reported digital technological failures in Africa are taking place in an environment of highly stated levels of digital technology diffusion and ubiquity and also large amounts of financial investment the continent has committed towards digital development (Piper, Jepkemei, Kwayumba, and Kibukho, 2015). This status quo is against the reported benefits that accrue to organisations which fully utilise digital technologies to promote public value. For instance, proper and effective deployment of digital technologies present organisations with an opportunity to survive in a fast changing and complex environment (Mawela et al., 2017).

Furthermore, through fully utilisation of digital technologies, governments stand a better chance of meeting citizens' expectations. Such expectations include the creation of public value through provision of quality services. In view of the foregoing discussion, municipalities as public service institutions stand to benefit immensely by making use of digital technologies as that may reduce their slow response rate to citizens' requests and also address matters related to limited and inconvenient hours offered by the organisations (Mawela et al., 2017). At the present moment, a number of municipalities from Southern Africa still lack understanding of why there is low utilisation of digital government platforms by citizens (Ayantunji, 2016), whereas Mawela et al. (2017) hold the view that the benefit of digital technologies for a public institution lies in its application to process and generate transactions that will enhance public value.

Osei-Kojo (2017) states that in Ghana, the introduction of digital technologies signalled the dawn of a new era where public sector organisations' technological systems were expected to be digitally innovative thereby promoting citizen-centricity. Further, such systems help organisations increase efficiency while at the same time reducing operational cost. However, other than increasing efficiency, digital technology driven service delivery leads to an enhanced relationship between citizens and government organisations (Osei-Kojo, 2017; Olumoye and Govender, 2018). Arguably, deducing from the foregoing arguments, digital technology usage is fairly significant and may be viewed as the driver for e-democracy. Moreover, bureaucracy may be reduced and costs associated to distances between governments and citizens can be minimised. Thus, full utilisation of digital government platforms by governments and citizens may also inject some form of urgency in the service delivery and improved information quality.

In spite of the acknowledged importance of digital technologies worldwide including in Africa, Osei-Kojo (2017) and Olumoye and Govender (2018) lament the poor state of digital government specifically in Sub-Saharan Africa. The indications from empirical evidence in the African context is that public sector digital government systems lack on digital innovation as they remain inefficient and less responsive to the detriment of citizens. Some scholars take issue with poor information quality which has remained an endured phenomenon by citizens attempting to access digital services from government organisations such municipalities (Nhema, 2016; Kayisire and Wei, 2016). However, within the wider research interest on Transformational Government in Africa, of particular interest to this study, is how digital innovation through digital government platforms can contribute towards realising the impact of Transformational Government in Zimbabwe.

Similarly, Olumoye and Govender (2018) and Verkijika and De Wet (2018) observe that many governments from Sub-Saharan Africa have embraced digital technologies in their activities in an endeavour to deliver effective and efficient information and services to the citizens. These digital technologies range from municipal websites, web portals, mobile applications and use of social media platforms such as Facebook and WhatsApp. Further, scholars acknowledge that in embracing digital technology initiatives, many governments developed their own digital government platforms for use in the quest for an effective and efficient service delivery system (Verkijika & De Wet, 2018). Moreover, the use of digital technologies by governments is viewed as an unavoidable platform that has become essential towards promoting interactivity between governments and citizens. Further, the platform has become so popular, such that many governments utilise it in the dissemination of information, improving administrative efficiencies and promoting citizen trust. For example, through the usage of the digital government platforms, citizens stand to benefit through access to information pertaining to housing application forms, new projects within their jurisdiction and newly developed policies.

A study conducted by Verkijika (2017) in the context of Sub-Saharan Africa notes that the adoption and use of digital technologies by government, is seen as a significant move towards improving administration efficiency. This might be seen as a vehicle towards marketing municipal tourism sites as well as other places of interest that might attract investors. In consensus, other scholars who conducted similar studies, advance the view that this may as well improve administration efficiency thereby promoting democratic governance; while at the same time helping to reduce corruption amongst government officials consequently building citizens' trust (Olumoye and Govender, 2018; Verkijika and De Wet, 2018). Undisputedly, governments require these digital technologies so as to improve on resource management and service delivery (Kamaruddin and MdNoor, 2017). In view of the aforementioned statement, it is regrettably that municipalities in the context of Zimbabwe are yet to fully embrace digital government platforms utilisation (Nhema, 2016). This low digital government utilisation is perhaps due to a number of reasons. Some of the arguments raised in literature point to the lack of digital innovativeness and also the lack of a digital innovative policy framework within the public sector (Alonso, Escalante, and Orue-Echevarria, 2016; Lupilya and Hun, 2015). Hence there is a need for these municipalities to realise the impact Transformational Government through embracing digital innovativeness and developing sound digital government policies.

There is increasing empirical evidence that despite the reported positive benefits accruing from utilising digital government platforms, many nations in the Sub-Saharan Africa region still

lag behind (Osei-Kojo, 2017;Olumoye and Govender, 2018). For instance, a study conducted by Verkijika and De Wet (2018) observes that despite the significance and ubiquity of digital government platforms, an evaluation of these platforms from a public value perspective in the African context remains very limited and far from satisfactory. For instance, some of the digital government platforms were found to be wanting on innovation, leading to lack of responsiveness, interactivity and information quality among other things. However, it is lamentable that this status quo limits the willingness of citizens to interact with municipalities. Further, some of the reasons that characterise the state of digital technology from Southern Africa countries are related to poor ICT infrastructure and ineffective and inefficient information management systems (Nhema, 2016; Verkijika & De Wet, 2018). As such, this calls for municipalities to comprehensively explore digital innovation in an attempt to realise the impact of Transformational Government.

2.2.3 Digital Technologies in the Public Sector: A Zimbabwean perspective

The deployment of digital technologies within the public sector gained momentum around 2005 when the Government of Zimbabwe together with the National Economic Consultative Forum embarked on an e-readiness survey (Nhema, 2016). The process was meant to inform citizens on the intent to roll out digital technologies in the public sector of the country. As observed by Nhema (2016) and Tsokota (2017), the e-readiness program became the basis for introducing the National ICT policy in the country. This followed the establishment of the Ministry of Information Communication and Technology meant to drive digital access countrywide.

At the present moment Zimbabwe's digital access is driven by a unit from the Office of the President and Cabinet under the name "ZimConnect" (Nhema, 2016). The term 'ZimConnect' means 'to bring together' the government and its citizens through use of digital government platforms. Further, scholars observe that ZimConnect is a framework aimed at stimulating the use digital technologies in the public sector as means of promoting public value. (Kayisire and Wei, 2016; Dube and Gumbo, 2017).

Driven by the quest to promote Transformational Government, the Zimbabwean government developed various pieces of digital technology reforms that inform the current Information and Communication Technology (ICT) National Policy of 2015 (Nhema, 2016). Such digital technology reforms include among others, the Science and Technology policy, the Zimbabwe Agenda for Sustainable Socio-Economic Transformation and the National Industrial Development Policy as shown in Table 2.1.

The benefits associated with the utilisation of digital technologies motivated the Zimbabwean government towards developing the National ICT reforms. Notably, utilisation of digital technologies is viewed as a conduit through which the impact of Transformational Government can be achieved. This can be achieved through reduced transactional costs, increased communication between government and citizens thereby creating public value in the process (Ruhonde, 2016; Khumalo, 2017).

Table 2.1: A summary of developed policies leading to ICT National Policy of 2015

Policy	Brief description	Year implemented
Zimbabwe National Policy for Information and Communication Technology	To stimulate the adoption and fully utilisation of internet and web-based ITCs.	2015
Zimbabwe Agenda for Sustainable Socio-Economic Transformation	Accelerating economic growth through renewed usage of ICTs embedded in all National development strategies.	2013 – 2018
Strategic Plan	To transform Zimbabwe into an ICT hub.	2010
Short Term Emergency Recovery Plan	To reform and align the telecommunications sector to SADC framework.	2009
National ICT Policy Framework	Providing guidelines for national ICT implementation.	2006
National e-Readiness Survey	Focusing on the nation's e-readiness towards embracing ICTs	2005
Zimbabwe Millennium Developed Goals	Focusing on ICTs as instrumental in meeting United Nation's MDGs	2005
National Economic Recovery Programme	Economic turnaround through science and technology.	2004 – 2006
Industrialisation Policy	To embrace ICTs to boost exports in the manufacturing sector	2004
WSIS Declaration and Plan of Action	Focused on creating policy environment that promotes the development and utilisation on ICTs.	2003
Science and Technology Policy	Embracing science and technology for national development.	2002
Nziramasanga Education Commission Report	Focused on introducing ICT teaching and learning in schools.	1999

Source: Adapted from Ruhonde (2016)

Nhema (2016) laments the low levels of digital technology uptake in Zimbabwe compared to other countries in the world. For instance, the scholar observes that as a result of low or ineffective digital technology usage levels, most citizens still physically visit government offices

in search for information, and also complete and submit various documents physically when they wish to pay rates and taxes. There is also increasing evidence pointing to the absence of cybersecurity that protects the integrity and confidentiality of citizens' data in cyberspace. More so, the scholars also cite lack of ICT skilled personnel and low digital literacy (Fasasi and Heukelman, 2017; Mawela et al., 2017). As a result, lack of ICT skilled personnel affect the rolling out of digital technology programmes, whereas low digital literacy affects the adoption and usage of digital technologies. However, the uptake and usage of digital technologies and Internet has greatly improved in many aspects of the economy in Zimbabwe in last two decades (Zimbabwe National Policy for Information and Communication Technology, 2015). Despite these reported improvements on digital technologies usage, there is still a gap as to the reasons behind less utilisation of digital government platforms in the context of municipalities in Zimbabwe. This calls for an in-depth investigation of what digital innovations may lead towards realising the impact of Transformational Government particularly in the context of municipalities from developing countries such as Zimbabwe.

While the aforementioned improved uptake and usage of digital technologies by citizens is not surprising, the National ICT Policy postulates that there has been some growth with active mobile penetration reaching 97% and Internet penetration reaching 63% as at December 2018. In tandem with this argument, the availability of digital services has been made easy with citizens exchanging information with government through applications such as Facebook, WhatsApp and Twitter (Nhema, 2016; Dube and Gumbo, 2017). Through proper and effective deployment of digital technologies, governments can relocate digital services from their brick and mortar structures closer to citizens, thereby creating public value. Further, it has been suggested by several scholars that digital technologies may reduce red tape experienced within government systems, improve the quality of service, reduce operational costs and save on time (Ruhonde, 2016; Verkijika and De Wet, 2018; Hinings et al., 2018).

Zimbabwe National Policy for Information and Communication Technology (2015) asserts that the uptake and use of Internet and digital technologies has tremendously improved as evidenced by the reduction on digital divide between rural and urban citizens. This improvement is attributed to the robust infrastructural development that has made it easy for most citizens to embrace the use of digital technologies. The digital government platform can create an environment where citizens may easily communicate and transact using different digital government platforms such as the web portal, Facebook and Twitter. Further, this has seen Zimbabwe continuously invest in digital technology infrastructure, ICT education and in the creation of Community Information Centres. Notably, all these initiatives are done in order to support all ties of the government.

However, in spite of the acknowledged significance and developmental efforts reported pertaining the uptake and usage of digital technologies in the Zimbabwean context, several scholars and reports still lament the low levels of digital innovation within public sector organisations such as municipalities (Zimbabwe National Policy for Information and Communication Technology, 2015; Ruhonde, 2016; Nhema, 2016; United Nations, 2018). As a result, this study seeks to add to the existing body of knowledge as to how Digital Government Ambidexterity innovation may lead to the realisation of the impact of Transformational Government within municipalities in the context of a developing country like Zimbabwe.

2.3 Digital Government and Digital Technologies

The introduction of digital government presents a unique way of interacting with different stakeholders by public sector organisations through full utilisation of digital technologies such as the web-based ones. (Ayantunji, 2016). This implies a shift from the traditional service delivery ways of governance characterised by visiting brick and mortar structures and face-to-face methods. Digital government refers to the use by government agencies of information technologies such as Wide Area Network, Internet and mobile computing that can transform relations with citizens, businesses and other arms of government (United Nations, 2014). In consensus, Ayantunji (2016) defines digital government as a government's use of technologies, particularly the Internet services applications to improve access to and delivery of government information and services to citizens, businesses and other government organisations.

Simply stated, digital government refers to the delivery of government information services digitally through the Internet, and other digital means (Alshetewi et al., 2018). In this regard, full embracement of digital government initiatives has the potential to foster sound and lasting relations characterised by efficiency between public sector organisations and its stakeholders (Li and Feeney, 2014). Relating to digital government initiatives from an African perspective, several scholars such as Mawela, Ochara, and Twinomurinzi (2017) hold the view that more emphasis has been placed on gaining understanding of its adoption, rather than focusing on the transformation of traditional governments to Transformational Governments.

2.4 Transformational Government

Transformational Government is defined by Kamaruddin and MdNoor (2017) as digital technology enabled and organisation led transformation of government operations, including internal and external processes and structures to enable the realisation of services that are

effective, transparent, and accountable and citizen-centric. Lindgren and Van Veenstra (2018) view Transformational Government as the realisation of organisational change beyond service delivery to citizens facilitated by the use of digital technologies in order to create value and increase government's responsiveness. Transformational Government relates more to the use of citizen-centric digital government programs such as the digital government platforms in service delivery (Alshetewi et al., 2018). Transformational Government places emphasis on online processes that address individual and business needs (Kamaruddin and MdNoor, 2017). However, from the aforementioned definitions, there is a sound conceptual generality as entails Transformational Government. In essence, the current study views Transformational Government through the lens of information quality initiatives and public value.

Regarding the convergence of scholarly opinion on some of the factors that explain what Transformational Government entails, of great interest is how these scholars view citizen-centricy as the heart of Transformational Government (Kamaruddin & MdNoor, 2017; Alshetewi et al., 2018). Further, Transformational Government is viewed as a conduit towards the promotion of e-participation, whereby citizens are enabled to access timely, accurate and efficient critical information shared and disseminated by the government. In addition, it is observed as an avenue that enables citizens to contribute ideas towards improving service provision and matters of development. As a result, trust is built along the way through benefits realised from Transformational Government (Porumbescu, 2017). These benefits can only be realised if public sector organisations can fully utilise digital government platforms towards the creation of public value (Lips, 2017).

With regard to the aforementioned scenario, it can be further argued that Transformational Government is regarded as a new paradigm emerging from digital government. It has the potential to transform governments through integration of digital services and an envisaged involvement of citizens through the provision of tailored and customised digital services. It is a concept that is more citizen-centric and one which is highly interactive, thereby enabling citizens to engage service providers.

Although some Transformational Government efforts from developing nations remain sluggish, there is growing evidence that the introduction of digital government platforms has considerably brought a relief to citizens as they are able to track personal transactions, access information about government activities, view and pay bills online (Osei-Kojo, 2017). However, it remains a complex matter to comprehend how Transformational Government initiatives and the usage of digital technologies, with all its innovation, has not been able to convincingly

show its benefits and value to citizens (Mawela et al., 2017; Alshetewi, Alturise, and Karim, 2018). This is despite the fact that Transformational Government initiatives has great potential towards promoting quality digital services and enhancing public value (Kamaruddin and MdNoor, 2017).

With the emergence of the fourth industrial revolution, new digital technologies have been presented to the society and therefore Transformational Government is expected to empower and provide citizens with one-stop services that promote the integration of back office architecture through robust utilisation of digital technologies (Kamaruddin and MdNoor, 2017; Björses, 2019). Fourth industrial revolution relates to the emerging enabling digital technologies which create the integration, a network where digital objects communicate with each other (Li, Hou, & Wu, 2017). In view of the foregoing discussion, it is further argued that Transformational Government is citizen-centric or citizen oriented, because of its main focus of placing citizens at the centre stage of all government processes, where governments are expected to design digital services that are tailor-made and informed by and for citizens. It is expected that tailoring services to suit the needs of citizens promotes active participation in service design and delivery (Kamaruddin and MdNoor, 2017; Mahmood et al., 2018). In an endeavour to promote Transformational Government, government organisations should consider citizens' needs as the first priority. Through Transformational Government, public value may be created as a result of trust built between governments and citizens. In a way, Transformational Government enables the building of trust between the government and its constituencies (Lindgren and Van Veenstra, 2018).

Serrano-Cinca and Muñoz-Soro (2018) in their study focusing on municipalities in Spain, note that with the emergence of Transformational Government driven by the usage of digital government platforms has brought about the much awaited change in the internal government bureaucracy. Their study focused on the usage of digital government platforms built on the fundamentals of Web 2.0 that promotes the two way communication between municipalities and citizens. As defined by Roengtam et al. (2017) Web 2.0 refers to the platform that promotes interactive participation through the use of Internet and digital technologies. For instance, literature presents that in the context of digital technologies, comparatively, the governments of Spain, Denmark and Sweden digital government platforms' are the most common channels through which citizens interact with municipalities (Palm and Lilja, 2017; Nielsen, Mathiassen, and Hansen, 2018; Barrutia and Echebarria, 2019). Moreover, social media platforms are integrated to the digital government platforms, thus creating a one-stop digital service for citizens. As a result this has led to many citizens becoming users of the platforms and participating towards improving service delivery. This has promoted citizen

participation in policy formulation and dialogue as well, thereby increasing digital technology utilisation and public value.

Mawela (2015),Osei-Kojo (2017) and Verkijika and De Wet (2018) suggest that effective Transformational Government may also be driven by the effective utilisation of digital technologies which is the missing link towards efficiency. See Figure 2.1. With the usage of the digital government platforms, citizens get to monitor government as it conducts its activities, and that promotes transparency thereby increasing trust from citizens' perspective. Notably, the main thrust of Transformational Government is about the involvement of citizens in service delivery matters. Citizens should take a centre stage through participation in the development of digital technologies that government will use to disseminate information and for transactional purposes. For instance, Verkijika and De Wet (2018) argue that if governments upload to their digital government platforms draft policies, citizens can be motivated to participate in the discussion thereby promoting interactivity advocated by the concept of Transformational Government. However, these scholars raise grave concerns pertaining to the little realisation of Transformational Government in the context of developing countries (Verkijika & De Wet, 2018).

This is against the background of a substantial amount of investment on digital technologies the countries have committed and the diffusion and ubiquity of these digital technologies. While several digital technology programmes have been set up to promote the utilisation of digital government platforms as a mode of government and citizen interaction in municipalities, regrettably, there remains a gap between aspirations of these programmes and public value. By the same token, what also remains underexplored from the context of developing countries is the perspective that takes cognisance of the influence of Digital Government Ambidexterity towards promoting Transformational Government.

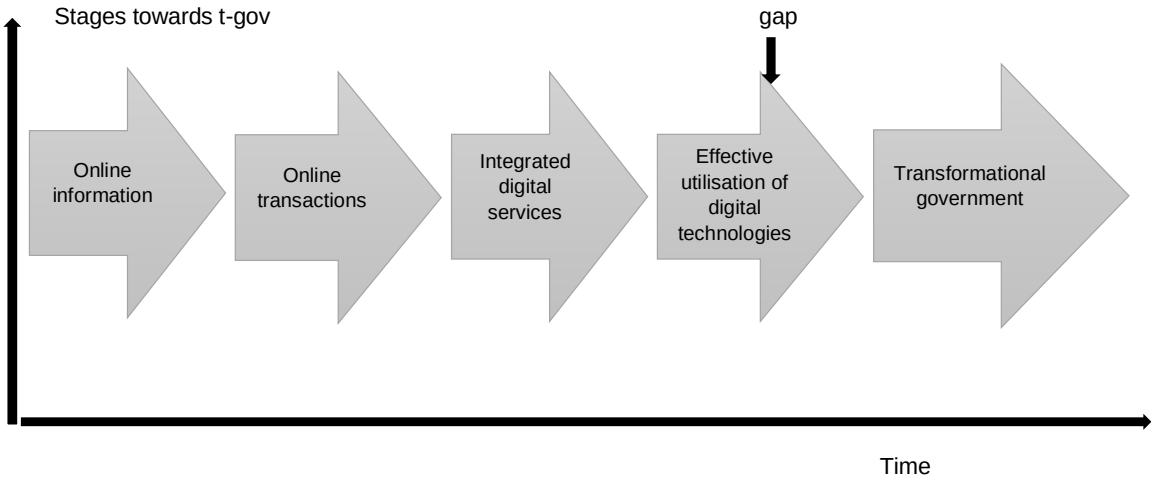

Figure 2.1: Stages towards Transformational Government .

2.4.1 Citizen-centricity

There is increasing evidence to support the view that citizen-centricity is at the core of Transformational Government (Kamaruddin and MdNoor, 2017; Alshetewi et al., 2018). In view of the concept of citizen-centricity, Kamaruddin and MdNoor (2017) observe that the concept of citizen-centric is central, key and significant in the implementation of Transformational Government. Though it is argued that the precise definition of citizen-centric has not yet been fully explored, the concept is somewhat viewed from the perspective of citizens. This is because citizens are regarded as users of organisational digital government platforms. Further to that, the government policies and services should be designed in a way that fully embraces the expectations and needs of citizens (Alshetewi et al., 2018). Mcdonald (2006) one of the earlier scholars who explored the concept of citizen-centric as a concept of governance, define it as “putting the user at the centre in the designing and delivery of online services and content”. In the same vein, citizen-centric is defined as “putting the citizens in the centre and building services around the citizen” (Berntzen, Johannessen, and Ødegård, 2016). Further, these scholars argue that the concept of citizen-centric also encompasses shared ideas among public sector employees and citizens (Berntzen, Johannessen, and Ødegård, 2016). In support of their definition Berntzen et al. (2016) suggest that, in most cases the public sector has a tendency of implementing services that do not place citizens at the centre stage. This is because; managers in the public sector mostly concentrate on internal efficiencies.

Alshetewi et al. (2018), hold the view that citizen-centric entails “putting the needs of individuals and businesses at the centre of online processes”. In view of the foregoing discussion, many public sector organisations have since shifted the focus towards the Transformational Government approach as means of trying to create citizen-centric governments. While on a similar note, Alshetewi et al. (2018) further argue that Transformational Government is on its infant stages in the developing countries, and as such trying to fully embrace it might be a challenge because it requires the interrelation of information systems. However, the integration and interrelation of information systems would enable governments to move towards Transformational Governments hence creating public value. According to the United Nations (2018) report, citizen-centric is understood as addressing the specific needs of different societies through the provision of digital services that are tailor made to benefit the citizens.

To support the concept of citizen-centric towards realising the impact of Transformational Government, Kamaruddin and MdNoor (2017) developed a model that explicates citizen-centric demands of Transformational Government . Kamaruddin and MdNoor (2017) proposed a model with four components that must be addressed in any citizen-centric Transformational Government as shown in Figure 2.2. The components are: transparency and openness; citizen-driven services; participatory democracy and co-creation of value. The model is viewed from the citizens’ perspective and not from the government’s view point.

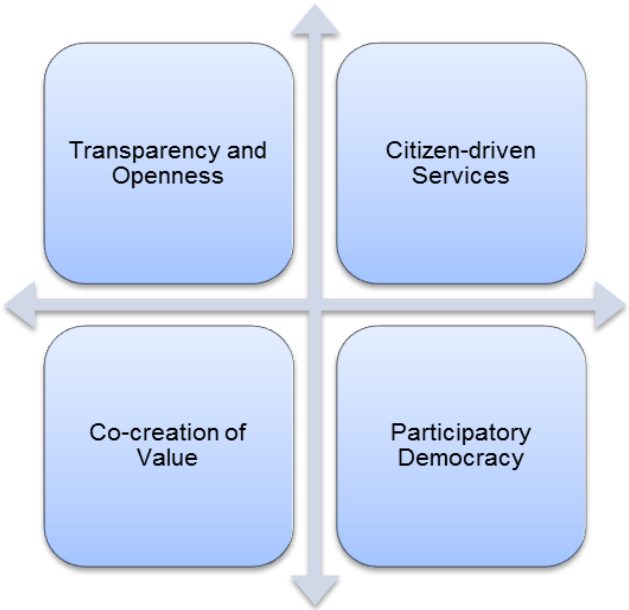

Figure 2.2: A citizen-centric demand model for T-government
Source: adopted from Kamaruddin and MdNoor (2017)

2.4.1.1 Transparency and Openness

Transparency relates to the openness and willingness of the government to share or provide information about its operations and processes to citizens (Kamaruddin and MdNoor, 2017). Further, Mahmood et al. (2018) state that transparency promotes accountability, and enables the government to share its information about public services with its citizens. Providing government information to citizens will not only promote transparency, but that will also promote trust in government digital services. For instance, such government information may include financial statements, consolidated budgets, policy strategy, online tenders, government activities and projects reports among others (Verkijika and De Wet, 2018). Further, citizens must be able to make their contribution or lodge complaints using same digital government platforms. More so, citizens may as well be encouraged to participate through the provision of innovative ideas which speak to matters of development. However, this kind of interaction as a result of government being transparent and open to its citizens may even possibly improve the utilisation of digital government platforms such as the web-based ICTs.

2.4.1.2 Participatory Democracy

Participation relates to citizens' involvement in the decision-making processes, planning and utilisation of the Internet and digital government platforms towards improving government services so as to create public value (Kamaruddin and MdNoor, 2017). Notably, citizen participation can be further enhanced by an interactive digital government platform that is characterised by digital innovation which allows for a two-way communication between the service provider and citizens. Through digital innovation, it results to the development of interactive digital government platforms, something that may create a sense of ownership among citizens thereby enhancing chances of full utilisation of the organisational digital government platform.

It is this kind of ownership that will promote participation in municipal activities by citizens (Lindgren and Van Veenstra, 2018). Kamaruddin and MdNoor (2017) suggest that, to promote citizens participation, the information from digital government platforms should be appealing and engaging such that it arouses citizens' interest to use the platforms. Moreover, citizens' contributions as a result of participatory initiatives should be captured in municipal policies. However, social media platforms integrated to municipal digital government platform may enhance quick responsiveness thereby promoting valuable citizen participation in decision making and the development of citizen-centric services. Through citizen participation, municipalities can build good organisational identity anchored on culture and image.

2.4.1.3 Citizen-driven Services

Separate studies conducted by Berntzen et al. (2016) and Verkijika and De Wet (2018) argue that the main focus of the concept of citizen-centricity is the involvement of the end user by governments during digital innovation development of products or services. In a way, municipalities must learn from their citizens of the digital innovation features needed before they can embark on developing them. Scholars further argue that citizens should be the co-creators of the municipal services platform not just the end users. Thus it is essential that citizens' expectations and contribution are incorporated in the designing of municipal digital services or products **(**Berntzen et al., 2016).

2.4.1.4 Co-creation of Value

Public value can be enhanced through viewing citizens as co-creators in municipal services (Berntzen et al., 2016). Co-creation of value can also be driven by citizen engagement through utilisation of digital government platforms. However, digital government platforms characterised by digital innovation stimulate participation between municipals and their citizens on service delivery matters. As such, citizens may participate in policy formulation, contributing to the formulation of budgets and other municipal activities thereby co-creating value.

2.5 Citizens' requirements for Transformational Government

Citizens are placed at the heart of Transformational Government hence paying attention to their needs will help in creating public value. Arguably, there is a general consensus of scholarly opinion on some of the benefits that can be realised by embracing digital innovation in the public sector. However, Kamaruddin and MdNoor (2017) note that there is a misconception in assuming that by merely introducing digital technologies, citizens will automatically put them to use and thereby creating value. Further, such misconceptions have led to failure of Transformational Government initiatives on the part of municipalities especially in developing countries (Nhema, 2016; Lindgren and Van Veenstra, 2018; Verkijika and De Wet, 2018). Thus, some of the failures observed that limit Transformational Government initiatives include; inaccessibility of digital government platforms, lack of public trust, limited impact on service delivery and poor utilisation of digital government platforms (Kamaruddin and MdNoor, 2017).

In view of the aforementioned failures, limiting Transformational Government initiatives Kamaruddin and MdNoor (2017) observe that it is as a result of overlooking the importance of human input in the development of digital technologies. Further, citizens' requirements have

since moved away from demanding just digital services. For instance, the focus in many countries currently is more on flexible digital technology systems, personalised systems and varied conduits of service delivery (Kamaruddin and MdNoor, 2017). With this in mind, municipalities can realise the impact of Transformational Government through soliciting for input from citizens in the course of developing digital government programs.

Digital government plays a significant role in public sector service provision. There is a general expectation that municipal employees use digital technologies to communicate, transact and interact with their citizens. Further, these organisations may organise budget consultations meetings, solicit for information on policy drafts and other municipal activities through utilisation of the Internet and digital government platforms (Lindgren and Van Veenstra, 2018). Citizens may receive updated information on municipal activities and transact online. This Transformational Government status quo presents a number of benefits to municipalities which promotes citizen-centricity.

2.6 Benefits of Transformational Government

Studies conducted by Li and Feeney (2014) and Lindgren and Van Veenstra (2018) suggest that full embracement of Transformational Government services, such as online information transacting and integrated service delivery for services and social networking tools provide municipalities with potential savings, thus allowing these organisations to engage in a two-way communication with citizens, thereby creating public value. Scholars further posit that employing a combination of digital technologies and Internet services in transmitting information provides managerial efficiency and also transforms municipalities' activities (Lindgren and Van Veenstra, 2018). In consensus, Abu-Shanab and Bataineh (2014) and Mahmood, Weerakkody and Chen (2018) argue that embracing Transformational Government initiatives increases efficiency, credibility and promotes transparency, provides effective tools in revenue and taxes collections while at the same time reducing cost associated with the traditional methods of interaction with public sector organisations. Further, through Transformational Government citizens receive real time information on different services such as schools' performance, housing application forms, available residential stands, state of municipal-run health centres and interactive forms for user feedback, and this could promote trust and more usage of digital technologies.

More importantly, Transformational Government promotes government-citizen relationships, creates a more participative environment, flexibility, accessibility and the delivery of integrated public services (As'ad, Khazaei, Akhgar, and Alqatawna, 2016; Kamaruddin and MdNoor, 2017; Olumoye and Govender, 2018). Karkin et al. (2018) and Lindgren and Van Veenstra

(2018) highlight that proper application of Transformational Government enhances government responsiveness and openness. Through government responsiveness and openness, public sector organisations such as municipalities stand to benefit by way of organisational identity building, enhancing its visibility and thereby possibly attracting international investment. In addition, municipalities stand a better chance of forming partnerships with other institutions of a similar nature from other countries. This may also bolster the citizen trust levels for municipalities and improve utilisation of their digital technology platforms.

2.7 Significance of Municipalities for Transformational Government

Municipalities have an important role to play towards improving the lives of citizens within their jurisdictions. Some of the roles municipalities are expected to play in terms of physical development of their places include among others; the construction and maintenance of various infrastructures and the provision of assorted services such education, health, housing and licensing. Municipalities are the nerve centres of any central government and as such play a pivotal role in understanding and addressing the citizens' needs at the grass-roots levels. Mawela et al.(2017) observe that in as much as municipalities are a delivery arm of the central government, they also carry the burden of ensuring that there is service provision to citizens. Furthermore, Municipalities are regarded as effective conduits for transmitting information to citizens due to their proximity. However, in an endeavour to provide sound service delivery municipalities face numerous challenges that range from slow response rates to citizen's needs, limited business hours offered and sometimes citizens are reluctant to pay rates and taxes on time due to lack of involvement (Jonga, 2016; Mawela et al., 2017).

Related to the foregoing discussion, Nhema (2016) argues that given the several challenges bedevilling municipalities in the 21st century, these organisations should consider redesigning services around citizens needs so as to benefit from increased efficiency. Nonetheless, given the fact that municipalities are closer to citizens, their involvement and partaking in municipal activities such as budgetary consultations and policy formulation becomes of paramount importance. With that in mind, the concept of citizen-centricity which is driven by interactivity is anchored upon effective digital innovation.

2.7.1 Transformational Government sustainability in Municipalities

Notably, Mawela (2015) and Teng-Calleja et al. (2017) hold the view that realisation of any Transformational Government hinges on the success of digital service experience. In essence, the sustainability of Transfomational Government requires that municipalities redress

inadvertent consequences related to non embracement of digital innovations (Kamaruddin & MdNoor, 2017). However, Transformational Government is viewed as the outcome of a digitalisation change process in public sector, that goes beyond service delivery to citizens, in order to create value and increase government responsivesness (Lindgren & Van Veenstra, 2018). The focus of Transformational Government is on benefits realisation through citizen-centricity, and not merely the adoption of digital technologies in governments. In this regard, the ultimate result of Transformational Government cruxes on efficiency, effectiveness and the value realised by citizens. In light of the aforementioned statement, Transformational Government can remain sustainable, that is if municipalities develop innovative and interactive digital government platforms tailor made for citizens. For instance, digital government platforms from a number of Zimbabwean municipalities, including Bulawayo metropolitan, Gweru city council and Victoria Falls municipal seem to be lagging behind in as far as digital innovation is concerned Auditor-General Zimbabwe (2016). In view of the foregoing discussion, there is glaring evidence which point to lack of digital innovation, for instance, underdeveloped digital government platforms. This status quo lead to a digital government platform which lacks on interactivity and is not citizen-centric.

In spite of the acknowledged importance and benefits associated with the realisation and full embracement of Transformational Government initiatives, lack of organisation-citizen participatory towards the utilisation of digital technologies is municipal services may affect its sustainability (Mawela, 2015; Nhema, 2016). Moreover, in view of the foregoing discussion, municipalities have to consider the needs of citizens on matters pertaining digital services if they are to be effective.

2.8 Digital Government realities in Municipalities

The introduction of digital government platforms has gained momentum in the past few years as is evidenced by rapidly increase of various municipal developing their own digital government platforms including rural district councils in remote places of the country. In spite of the acknowledged strides made in embracing these digital government platforms by municipalities, it remains unclear as to how these organisations have positioned themselves towards becoming Transformational Governments. This is so for the following reasons: Transformational Government is built on the foundations of digital innovation realised through developing an integrated, interactive and citizen-centric digital government platforms. Conversely, it is observed from the extant literature that most municipal digital government platforms are at different stages of development as some are mostly informational, therefore only allowing for the downloading of forms and one-way communication channel (Ruhonde,

2016; Osei-Kojo, 2017; Verkijika and De Wet, 2018). This scenario points to the urgent need by municipalities to embrace digital innovation if they are to realise the influence of Transformational Government.

There is a convergence of scholarly opinion on the state of Internet and digital technology usage in municipalities from developing countries such as Zimbabwe. In consensus, the general observation is that these municipalities' digital government platforms remain weak, inefficient, less innovative and as such do not promote citizen-centricity (Nhema, 2016; (Osei-Kojo, 2017). However, from the extant literature it is argued that digital innovation in the context of Zimbabwean municipalities' still remains low compared to other countries within the region. As some previous studies have proven, most citizens still physically visit government offices in search for information, and also physically complete and submit various forms and to pay rates and taxes (Ruhonde, 2016; Mawela et al., 2017). Further, the absence of cyber security which forms part of digital innovation presents a serious threat to municipalities as that kills the integrity and confidentiality of citizens' data in cyberspace (Nhema, 2016). For instance, in Zimbabwe some municipalities still experience a shortage of ICT skilled manpower and which limits local digital innovation.

However, in contrast to the aforementioned limitations associated to digital innovation and challenges bedevilling municipalities in Zimbabwe, the National ICT Policy of 2015 reports that the country has made significant strides towards becoming a Transformational Government . For instance, the Ministry opened information and communication centres in several urban and rural areas. These mixed views on the challenges bedevilling municipalities' calls for further assessment of the influence of Digital Government Ambidexterity and Transformational Government in municipalities within a Zimbabwean context. Also, given the shortage of studies focusing on Transformational Government in the Zimbabwean context, this study becomes important as it contributes to literature on Transformational Government initiatives from a developing nations' perspective.

2.8.1 Citizens ICT skills

Nhema (2016) holds the view that adequate ICT skills have contributed to digital literacy which promotes the utilisation of digital technologies. In the same vein, it can be further argued that lack of citizen ICT skills has remained one of the challenges militating against the move towards Transformational Government. Similarly, citizens' ICT skills are viewed as an important factor for driving e-participation (Mawela, 2015; Mawela et al., 2017). Further, scholars argue that ICT skills form the fundamentals that trigger Transformational Government, as such any form of digital exclusion may deny citizens' rights and privileges to

sound social and economic development (Manoharan et al., 2017). More so, obtaining ICT skills promotes digital services quality of municipalities and strengthens citizens' involvement in matters to do with policy formulation and budget consultations (Tomaszewicz, 2015; Ruud, 2017). However, it is generally believed that ICT skills enhance interactivity thereby promoting e-participation (Fasasi and Heukelman, 2017).

In contrast to Nhema (2016) viewpoint, there are reports about significant ubiquity and diffusion of the ICTs in Zimbabwe. For instance, it is reported that 12.9 million people are active mobile subscribers whereas 8.7 million people were found to be subscribers of Internet services. It can therefore be argued that most of the citizens with such skills come from an urban environment. With regards to that, and what remains puzzling are the reasons behind less utilisation of digital government platforms as means of municipal-citizen interactivity.

2.8.2 E-participation in Municipalities

The maturity of Transformational Government efforts has seen the exploitative digital technologies being extended towards enhancing citizen participation in public sector activities. Such activities include among other things, contributing to policy making, budget consultations and raising complaints on poor service delivery (Hobololo and Mawela, 2017; Mawela et al., 2017). In this regard, digital technologies deployment in facilitating citizen participation is referred to as e-participation and its efforts work towards promoting the dissemination of information whilst soliciting for citizen input. E-participation initiatives can be successfully achieved through embracing of digital innovation leveraged through digital technologies (Lindgren and Van Veenstra, 2018).

However, in the context of the public sector, a two-way communication between the government and its citizens can promote e-participation (Braccini, Federici, and S, 2017). For instance, municipalities to promote e-participation, they can try to involve citizens on matters focusing towards improving service delivery, exchange of information with citizens on new developments within their jurisdiction in terms of new government policies, generate support among citizens, probing for citizen needs, soliciting for citizen input or notify citizens on increase in tariffs (Hobololo and Mawela, 2017). Moreover, e-participation initiatives, enable citizens to engage with municipalities at any time convenient to them. This can be achieved through the use of an array of digital technologies.

2.8.3 Trust in Government

To foster Transformational Government, trust in municipalities by the public becomes an important factor in promoting the full utilisation of digital technologies. For instance, through

digital innovativeness, a municipal may promote openness and provide assurance of security and privacy aimed towards gaining citizens' trust (Verkijika and De Wet, 2018). In the same vein, Porumbescu (2017) defines trust as the "psychological state comprising the intentions to accept vulnerability based upon positive expectations of the intention or behaviour of another" (p.521). Hence the decision to trust is solely based on citizens' perceptions of municipal trustworthiness (Zhao, 2017). Citizens' trust in municipalities has been found to be an important aspect, as it speaks to the efficiency and quality of service offered by municipalities to citizens. Towards building of citizens' trust, there are several factors that influence their perceptions, for instance, the obtaining political environment and the level of citizen engagement. However, it is argued from the extant literature that lack of citizen engagement tends to breed bad governance, a scenario that influences low levels of citizen trust in municipalities (Porumbescu, 2017; Zhao, 2017; Verkijika and De Wet, 2018), in this regard, promoting less interactivity between citizens and municipalities. Other than low levels of trust between municipalities and citizens, lack of language options on digital government platforms may lead to less interactivity.

2.8.4 Language Policy complexities

As is enshrined in the constitution, Zimbabwe has 16 official languages. This poses a serious challenge for municipalities to design appropriate services in the language that is widely understood by all its citizens. This is one area that municipalities need to pay particular attention to if they are to successfully realise Transformational Government. From the extant literature there is evidence that points to long lasting benefits by ensuring that government services are offered in the language of choice for citizens (Mawela, 2015; Verkijika and De Wet, 2018). Further, municipal digital government platforms that offer language options enhance the chances of gaining trust from the citizens as these digital government platforms would be regarded as readable and understood by the inhabitants. As such, it can be argued that lack of language options on digital government platforms may be a potential driver that militates against full utilisation of digital technologies. In essence, the platform would be lacking on innovation hence the need for digital technology innovations on these municipal digital government platforms.

2.9 Transformative Technology for Transformational Government

Perhaps the most important avenue that may be utilised to deliver Transformational Government to citizens is through supportive digital technology (Mawela, 2015). In contrast to non-interactive first generation digital government platforms, Serrano-Cinca and Muñoz-Soro (2018) hold the view that, in the developing world context, municipalities currently rely on

mobile platforms and Web 2.0 technologies. As such, Web 2.0 technologies enable the concerned parties—the citizens and municipalities—to interact on different platforms. In consensus, Porumbescu (2017) is of the opinion that municipal social media platforms which also account for Web 2.0 promote interactivity between citizens and municipalities. As such Web 2.0 technologies help municipalities in the delivery of Transformational Government. For that matter, the implementation of Web 2.0 technologies creates a municipal-citizen interactivity digital platform.

In regard to the aforementioned discussion, these digital government platforms generally make use of simpler and understandable language thereby promoting information accessibility (Manoharan et al., 2017; Porumbescu, 2017; Roengtam et al., 2017). Contrariwise, these scholars note with concern that despite the importance and benefits realised as a result of using Web 2.0 based technologies, many municipalities from the developing world still emphasise on one-way communication, something that might point to lack of digital innovativeness on the part of municipalities from developing countries (Porumbescu, 2017; Roengtam et al., 2017). This is whereby organisations are the only parts that disseminate information to citizens (Porumbescu, 2017; Serrano-Cinca and Muñoz-Soro, 2018). Digital government platforms can hold and transmit large volumes of information to the benefit of citizens. More so, Transformational Government can be a success especially if municipalities effectively embrace digital innovation through optimisation of these digital government platforms to various types of communication devices.

2.10 Towards Digital Government Policy Implementation in Municipalities

The future of municipalities is centered on their capability to constantly drive digital innovation that will give citizens personalised services designed around their needs and not the needs of service providers. This will promote interactivity and improve citizens' trust and e-participation, thereby contributing towards the development of policies. This status quo suggests that there is need for extraction of content from the National ICT policy document, especially content that will inform digital government policy in municipalities. Put in other terms, municipalities need to draw up their own digital government policies that will stimulate digital innovation and enhance digital technology utilisation. More so, it is suggested that the digital government policy may as well assist the service provider to innovatively design personalised services for their citizens.

Some factors that may be suggested in digital government policy for municipalities, include monitoring and evaluation mechanisms of digital innovation levels as well as the digital technology usage. This may as include security factors that speak to safeguarding citizens'

information and quality of information accessed through the digital technologies. In addition, the policy will also focus on the development and stimulation of digital government platforms innovation through research and development in promoting Transformational Government. To this end, digital government policy for municipalities and regulatory framework becomes a necessity if a citizen-centric system is to be created. This status quo suggests that effective digital government policy implementation can promote sound digital innovation, subsequently creating municipalities that are Transformational Government. Supporting the aforementioned statement, our understanding of Transformational Government can be enhanced by viewing the concept through the lens of Information Systems Success model.

2.11 Chapter Summary

Chapter 2 provides a background description of the concept of Transformational Government and public value. This is followed by an overview of digital technologies in the public sector, beginning with a global perspective, followed by an African perspective and lastly a Zimbabwean perspective. Further, a review of digital government and digital technologies followed.

A comprehensive assessment of citizens' requirements for public value, significance of municipalities for transformational and digital technology realities in municipalities concepts were presented to understand how they can influence Transformational Government in municipalities within Zimbabwe. Precisely, the study focused on the influence of Digital Government Ambidexterity on municipal information quality leading to public value. This is followed by a detailed presentation on transformative technologies that promote Transformational Government. These are the digital technologies that augment municipal-citizen interactivity. Also a review of IS Success model and Public Value theory in relation to Transformational Government is interrogated

CHAPTER THREE

DIGITAL GOVERNMENT AMBIDEXTERITY

3.1 Introduction

This chapter provides an overview of the concept of Organisational Ambidexterity and Digital Government Ambidexterity. The chapter presents a comprehensive assessment of literature on the topic under study and also its key themes. The section begins with a definition of ambidexterity and a discussion of the nature of Organisational Ambidexterity. This is followed by operationalisation the concept of Organisational Ambidexterity and Digital Government Ambidexterity. Digital government platform has been conceptulised, followed by a discussion on Digital Government Ambidexterity—two key constructs of exploitative and explorative activities. Lastly, the chapter also focuses on the theory of dynamic capabilities theory as is engrained in the streams of Organisational Ambidexterity.

3.2 Ambidexterity defined

The term ambidexterity was first used in the context of managing organisations by Robert Duncan (1976) who explained the need for organisations to strike a balance in the management of activities between the exploitative and the explorative. Duncan (1976) defined ambidexterity as the organisations' capacity to simultaneously implement exploitative and explorative activities. The scholar suggested that, for organisations to be successful there is need to manage their activities in an efficient manner while being responsive to environmental changes.

The concept of ambidexterity is not only important to academics, it ensures that organisations effectively employ exploitative and explorative innovation which has been found to be a challenge for many managers (Luger, 2014). Duncan's concept gained prominence through regular citations by March (1991) who further clarified the need for organisations to balance exploitative and explorative innovation if they were to succeed in the long run, though some scholars point out that it is impossible to balance the tension between exploitative and explorative innovation (Boukamel and Emery, 2017; Nielsen, Mathiassen and Hansen 2018).

3.3 Organisational Ambidexterity

Boukamel and Emery (2017) define Organisational Ambidexterity as an organisation's ability to be aligned and efficient in its management of today's business demands while simultaneously being adaptive to changes in the environment. Choi and Chandler (2015),

Cannaerts, Segers and Henderickx (2016) and Reficco and Gutiérrez (2016) view exploitative and explorative as the capability to process incremental and radical innovations continuously and simultaneously. The concept of Organisational Ambidexterity is further defined as the organisations' ability to simultaneously pursue exploitative incremental innovation such as refinement and extension of existing competencies, technologies or processes and explorative radical innovation as means of enhancing the quality of Transformational Government initiatives through continuously searching and experimenting with new technologies, discovering new products and services that fit the demands of particular citizens (March, 1991; Heeks, 2006; Cannaerts et al., 2016:Palm, 2017; Alghamdi, 2018).

In Table 3.1 (on page 50), this research has presented a comparative layout of the various definitions of rganisational Ambidexterity. There seems to exist a convergence of scholarly opinion as to the facets involved in the definition of Organisational Ambidexterity. Despite of the varied views, the definition of Organisational Ambidexterity by Cannaerts et al. (2016) and Boukamel and Emery (2017) seem to provide a more holistic view because it embraces the element of integrating the seemingly contradictory exploitative and explorative innovation. One of the reasons for the contradiction between the exploitative and explorative revolves around resource commitment, a suggestion that implies that more resources may be committed on one factor over the other. This brings in a matter covered in a definition by Boukamel and Emery (2017), who also focused on addressing the tension that exists between exploitative and explorative innovation. This may suggest that the two seemily opposing constructs of Organisational Ambidexterity need to be treated as complementary forces rather than as competing forces (Umans, Smith, Andersson, and Planken, 2018).

However, the concept of Organisational Ambidexterity gained prominence from regular citations by March (1991) who identified the dichotomy of the contrasting forces of exploitative and explorative innovation as two strictly distinct learning processes in organisations (Boukamel and Emery, 2017). As such, exploitative innovation is associated with organisational activities such as refinement, efficiency, selection, and implementation, whereas explorative innovation characterises activities such as search, variation, experimentation, and discovery (March, 1991; Smith and Umans, 2015).

Table 3.1: Selected Organisational Ambidexterity definitions

Author	*Definition*
March, 1991	"Maintaining an appropriate balance between exploration and exploitation is a primary factor in system survival and prosperity" (p.71).
Raisch & Birkinshaw, 2008	"An organisation's ability to be aligned and efficient in its management of today's business demands while simultaneously being adaptive to changes in the environment" (p.375).
O'Reilly, 2013	"The ability to simultaneously pursue both incremental and discontinuous innovation" (p.3).
Wang & Rafiq, 2014	"Organisation's ability to both explore new competencies and exploit existing competencies" (p.58).
Preda, 2014	"Organisation's ability to generate a competitive advantage through the development of exploratory and exploitative innovation at the same time" (p.67).
Matthews, Tan & Marzec, 2015	"The need for organisations to continually develop and adapt in order to survive" (p.458).
Smith & Umans, 2015	"Organisation's ability to exploit existing competencies while with equal dexterity being able to explore new opportunities" (p.813).
Cannaerts, Segers & Henderickx, 2016	"Developing the capability necessary to reach a balance between exploitation and exploration by performing both activities simultaneously" (p.709).
Boukamel & Emery, 2017	"The ability of the organisation to balance exploitation and exploration and resolve the resulting tensions" (p.5).
Alghamdi, 2018	"Organisation's ability to exploit its current competencies while simultaneously exploring essentially new competencies" (p.1).

Source: Adapted from Bodwell (2011)

3.3.1 Operationalisation of Organisational Ambidexterity

Notwithstanding the notion that attaining Organisational Ambidexterity maybe challenging, Organisational Ambidexterity is now a well embraced concept in organisations both private and public (Cannaerts, Segers and Henderickx 2016; Reficco and Gutiérrez, 2016). Organisational management literature holds that some organisations succeed in managing

Organisational Ambidexterity because of the way they handle activities of exploitative and explorative innovation. More so, these two activities are somewhat viewed as contradictory or as two edge of one continuum (Palm, 2017; Lember, Kattel and Tõnurist, 2018). Exploitative innovation encompass refinement, extension of existing competencies and technologies which involve choice, efficiency, selection and implementation among other activities, whereas explorative innovation involves things characterised by experimentation with new alternatives through search, risk taking, flexibility, discovery and innovation (Cannaerts, Segers, and Henderickx, 2016; Gastaldi and Appio, 2017; Alghamdi, 2018).

Within the context of Organisational Ambidexterity, exploitative leads to improving the level of knowlegde and incremental innovation, whereas explorative enhances the level of knowlegde and radical innovation (Heirati, 2012 ; Karkin, Yavuz, Cubuk, and Golukcetin, 2018). Nevertheless, given the tension that exist between exploitative and explorative innovation, simultaneous pursuence of these two activities may lead to full utilisation of digital technologies in municipalities thereby realising the impact of Transformational Government.

3.3.2 Operationalisation of Digital Government Ambidexterity

The concept of Digital Government Ambidexterity relate to an interactive versus a non-interactive municipal web portal (digital government platform), and these activities speak to the concept of digital innovation which is also advanced for in the study. An interactive digital government platform to explorative innovation, since it enables citizens and the service provider a two way communication (Acosta-vargas et al., 2017; Mustafa, Ibrahim, and Mohammed, 2020). Citizens can access their accounts and be able to transact in the comfort of their homes, whereas a non-interactive digital government platform relate to exploitative innovation because it basically provides information and does not provide a platform for users to transact or exchange communication (Morales and Bayona, 2019). For example, using an interactive digital government, the system should enable citizens to download forms for completion before uploading them. This also may speak to the process of utilising online payment system accessed through municipal digital government platforms (Malik et al., 2017).

In view of this thinking, managing the contradictory nature of exploitative and explorative innovation may create ambidextrous digital government (Cannaerts, Segers, and Henderickx, 2016; Zaidi, 2017). Moreover, Heirati, (2012) and Smith and Umans (2015) suggest that, managing the contradiction of exploitative and explorative innovation depends on the extent to which the activities are handled. They can be handled either as competing or complementary forces. On one hand, literature suggest that the trade-off between exploitative and explorative innovation is veiwed as inescapable for reasons such as among others, limited

resources, and this culminate to two activities competing for resources (Tsai, Lin, and Chung, 2016; Boukamel and Emery, 2017).On the other hand, exploitative and explorative innovations are seen to be complementing each other in the sense that benefits accruing from exploitative innovation escalates with the contribution of explorative innovation (Heirati, 2012; Cannaerts, Segers, & Warsen, 2019).

In essense, if exploitative innovation is effectively pursued, that can enhance effectiveness of explorative innovation. As an illustration, this may lead to municipalities fully utilising digital technologies in their quest to realise the impact of Transformational Government. Consequently, ambidexterity can be achieved at a level where exploitative and explorative innovation are treated as complementary forces. In relation to this study, Digital Government Ambidexterity with specific focus on digital government platforms, exploitative and explorative digital innovation will be used to measure Digital Government Ambidexterity. Extending the discussion, the study looks at digital innovation (exploitative and explorative) through the lens of municipal digital government platform exploitative and explorative innovation, which is further explained by its non-interactivity (exploitative innovation) and interactivity (explorative innovation) (Heo, 2007). The non-interactive and interactive of digital technologies is ascertained through web portal which is a proxy of digital innovation (Heo, 2007; Kim and Kuljis, 2014).

3.3.2.1 Digital Government Web portals

The evaluation for web portal non-interactivity and interactivity, the current research adopted several previously proposed dimensions by different scholars such as Heo (2007), Kim and Kuljis (2014) and Olumoye and Govender (2018). On one hand, in advancing the view of digital innovation, on non-interactivity, digital government platform (web portals) were evaluated for features viewed from the web portal. Such features to the proxy include among others; if service images are clear and up to date, consistence in web portal design and logical web portal information, clear display of page content, clear menu items and the existence of a clear municipal logo. On the other hand regarding interactivity, the web portal was evaluated based on the presence of payment options through individual portals, web portal optimised for different communication devices, interactive social media integrated to the web portal, assurance of privacy and offering of language options.

The introduction of digital technologies as a means of promoting government-citizen interaction, has generated a lot of interest among scholars particularly on the influence digital innovation of the web portal content has towards enhancing information quality thereby creating public value (Acosta-vargas, Luján-mora, Acosta-vargas, Luján-mora, and Salvador-

ullauri, 2017; Verkijika and De Wet, 2018). In the same vein, Heo (2007) and Acosta-vargas et al. (2017) suggests that combining various dimensions such as ubiquity, stability and interactivity used to determine digital innovation, makes it possible for one to further explore the web portal content information evaluation. In addition, it has since become possible to investigate and evaluate web portal features through content analysis to ascertain their effectiveness as part of digital innovation. Of interest however, several scholars developed a number of dimensions used to determine digital innovation with specific focus to ascertaining the web portal interactivity (Acosta-vargas et al., 2017; Zaidi, 2017; Verkijika and De Wet, 2018). For instance some of the dimensions used to ascertain digital innovation of a web portal include, web portal aesthetics and information content (Heo, 2007; Acosta-vargas et al., 2017). Further, some scholars suggest dimensions such as readability, ease of use, availability, reliability, trust and citizen support (Papadomichelaki and Mentzas, 2012; Ziemba, Papaj, and Descours, 2014; Malik et al., 2017; Verkijika and De Wet, 2018).

With the ubiquity of web-based digital technologies, most governments from the developed countries are now using digital government platforms as means of processing disseminating various sets of information to citizens. However, it is lamentable that despite the benefits brought about by digital technology utilisation, many municipalities from developing countries are still yet to fully embrace digital innovation, whereas in some municipalities the digital government platforms are not as developed as the entities in the private sector (Roengtam et al., 2017; Verkijika and De Wet, 2018; Morales and Bayona, 2019; Butt, Warraich, and Tahira, 2019). One branch of literature suggests that less utilisation of digital government platforms could be associated to lack of digital innovativeness on the part of municipalities (Boukamel and Emery, 2017). To this end, in view of the foregoing discussion, what remains underexplored in literature, is the influence of an ambidextrous digital innovation on Transformational Government.

3.3.2.2 Conceptualisation of Digital Government Web portals

Digital government platform (web portal) may be defined as a platform through which public organisations and their citizens can use to communicate within a localised interconnected web ecology that provides information (Henman and Graham, 2019). Butt et al.(2019) also view digital government as online services that encompass digital interactions between governments and citizens. However, one branch of literature suggests that digital government systems can be classified according to their maturity stages (Oliveira and Eler, 2017) whereby such classifications could include the availability of information on a platform that calls for

government-citizen interaction and enables citizens to transact.This status qou creates a network for interactivity thereby promoting citizen participation.

Further, the new digital government trajectories created an environment which allows for multichannel communications and transactions between government and citizens thereby exhibiting the much anticipated digital innovations which make governments realise the impact of Transformational Government (Oliveira and Eler, 2017; Henman and Graham, 2019). This exhibits more mature levels of any governmental digital government platform therefore enabling citizens to interact, communicate, perform and complete online transactions,(e.g payment of rates and bills); thus providing opearational processes and personalised services that are intergrated. This kind of digital innovation makes governments realise the impact of Transformational Government. Further, the classification of digital government platform (web portals) informs the two Digital Government Ambidexterity factors namely; exploitative and explorative digital innovation as shown in Figure 3.1.

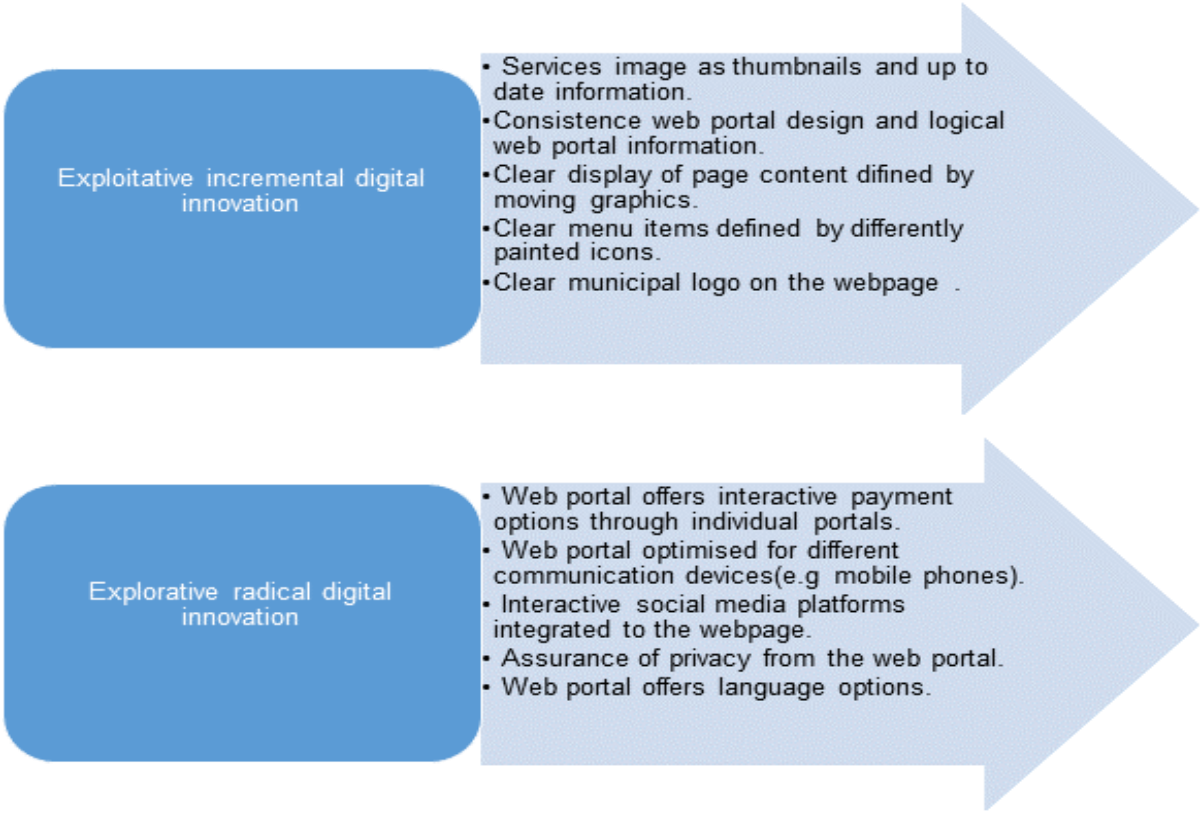

Figure 3.1: An ambidextrous digital innovation analysis

Source: Adapted from (Heo, 2007;Olumoye and Govender, 2018)

Regarding the importance of digital innovation in this day and age, it becomes an unavoidable phenomena for municipalities to promote digital innovation through continuous design of

responsive web portals particularly if they endeavour to promote organisation-citizen interactivity (Kamaruddin and MdNoor, 2017; Olumoye and Govender, 2018; Henman and Graham, 2019). This is against the backdrop that despite the ubiquity of digital technologies, some municipalities from developing countries still lack with regards to digital innovation as is shown through the maintenance of static web portals which are against the efforts of promoting Transformational Government. Notably, the concept of digital government platforms have been successful in some central governments organisations compared to municipalities mostly from developing nations (Mawela et al., 2017; Butt et al., 2019).

3.4 Digital Government Ambidexterity and Innovation

In order to enhance our understanding of Digital Government Ambidexterity and digital innovation, it is important to discuss activities under exploitative and explorative innovation in the context of public sector. Exploitative and explorative innovation are two significant activities in the domain of organisational management literature focusing on innovation. The ability to pursue exploitative incremental digital innovation and explorative radical digital innovation is referred to as ambidextrous digital innovation. In essence, embracing the integrated approach of Digital Government Ambidexterity enhances more efficient and effective decision making with regard to resource allocation which in turn enable more effective and efficient decision making regarding exploitative and explorative innovations (Gieske, George, vanMeerkerk and vanBuuren, 2019).

3.4.1 Exploitative Innovation

Exploitative and explorative innovation as suggested by several scholars involves learning, and with regard to exploitative innovation, it encompasses learning along technological trajectories (Bryson and Boal (2008); Carayannis, Grigoroudis, Del Giudice, Della Peruta, and Sindakis, 2017). Exploitative innovation is linked to activities such as refinement, choice, efficiency, selection and implementation among others. Tsai, Lin, and Chung (2016) point out that exploitative innovation involves alteration and extending existing digital technologies. It also denotes digital innovation intended for improving existing products or services (Huang, 2008;Hinings et al., 2018; Nowacki and Monk, 2020).

Literature further notes that exploitative innovation explains activities such as selection, efficiency and execution (Luger, 2014; Carayannis, Sindakis, and Walter, 2015; Carayannis et al., 2017). The scholars further argue that through exploitative innovation organisations get an opportunity to enhance their capabilities in the existing domains (Carayannis et al., 2017). Thus through exploitative innovation, organisations experience reliability in their digital

technologies derived from continuous refinement of skills, processes and existing competencies (Tsai, Lin, and Chung, 2016).

3.4.2 Explorative Innovation

Explorative innovation relates to activities characterised by experimentation, variation, risk taking, discovery of new opportunities and innovation to processes and digital technologies (March, 1991; Cannaerts, Segers, and Henderickx, 2016). Building on this understanding, explorative innovation involves pursuance of new processes, competencies and digital technologies that are distinctively different from the current ones in usage. This also denotes digital activities aimed at presenting new product or services (Huang, 2008; Hinings et al., 2018; Gieske et al., 2019). This may as well mark the departure from the existing norms of doing things moving towards adopting new concepts, design new softwares, new services, new processes, digital government platforms; that is new ways of doing things (Cannaerts, Segers, and Warsen, 2019; Peng, 2019).

Some scholars argue that exploitative and explorative innovation are interrelated activities yet somewhat different, the latter representing the ability of an organisation to create a wide range of experiences to the public (Lavie, Stettner, and Tushman, 2010; Smith and Umans, 2015; Boukamel and Emery, 2017). Explorative is identical to innovation; this is because it involves variability and the drive of trying new ideas or new digital technologies, new recombination of ideas or technologies (Bodwell, 2011; Palm, 2017; Lember, Kattel, and Tõnurist, 2018). To this end, in respect to the current study, the main focus is on Digital Government Ambidexterity and Transformational Government in the context of Zimbabwean municipalities.

3.4.3 Tension between Exploitative and Explorative Innovation

There is opinion convergence among scholars that competing factors such as scarce organisational resources, knowledge and funds among other things, is the major reason of treating exploitative and explorative innovation as two ends of a continuum (March, 1991; Cannaerts, Segers, and Henderickx, 2016; Lember, Kattel, and Tõnurist, 2018; Gieske et al., 2019). Exploitative and explorative digital innovation are viewed as two activities that need different organisational resources and attention. In support of this view, David (2016) provides an in-depth analysis of four tensions that are common in the field of Organisational Ambidexterity as differentiation vs. integration, individual vs. organisation, static vs. dynamic, internal vs. external.

Differentiation relates to the separation of exploitative and explorative innovation into different structural units, whereas integration refers to the contextual approach that focuses in creating

an organisational environment that promote individuals to pursue both types of exploitative and explorative innovation activities within a business unit (Raisch and Birkinshaw, 2008; David, 2016). Focusing on another form of tension, individual versus organisation, it is the expression of ambidexterity viewed through the differences that take place between individuals or organisations regarding embracing of exploitative and explorative innovation. Static and dynamic tensions focus on the temporary movement between the two factors (exploitative and explorative innovation), indicative of the need to pay attention to sequential changes, whereas dynamic view focuses on matters that strive towards promoting simultaneous ambidexterity (David, 2016). Lastly, internal and external tensions relate to how organisations address the two factors of exploitative and explorative internal.

March (1991), Lavie, Stettner and Tushman (2010), Cannaerts, Segers and Henderickx (2016) and Liang, Qi, Zhang, and Li (2019) argue that the association between exploitative and explorative innovation is interrelated and as such both activities could be simultaneously executed if there are slack resources. Such resources may include among other things, funds and qualified personnel.

Realising a balance between exploitative and explorative innovation is suggested by March (1991) as difficult, owing to reasons such as distinct variability. Given the variability and lack of consensus in literature relating to exploitative and explorative innovation, it reflects the challenges the two activities present to organisations. Luger (2014) and Boukamel and Emery (2017) hold the view that trying to balance the two perspectives of exploitative and explorative innovation may not present much anticipated positive organisational performance. This is because most organisations operate in a dynamic environment. As such, dynamic environment require that organisations realise more explorative than exploitative innovation. Whereas Tsai, Lin and Chung (2016) and Parikh and Bhatnagar (2018) posit that in as much as explorative innovations present new ideas and advantages, the exploitative innovation perspective cannot be ignored as it ensures higher certainty of success through utilisation of existing resources. Such resources may encompass among other things funds and digital technologies.

More so, Tsai et al. (2016) further contend that trying to maintain a balance between exploitative and explorative innovation may not be possible for an organisation because of limited resources. Raisch and Birkinshaw (2008), Boukamel and Emery (2017) and Barrutia and Echebarria (2019) argue that more emphasis on one over another tends to be a challenge for many organisations. For example, too much emphasis on exploitative innovation may lead to inertia, while too much emphasis on explorative innovation may lead to a futures-building

at the expense of current business competencies. In consensus, March (1991) suggests that, organisations that pursue exploitative innovation activities more often than explorative ones tend to succeed in the short run but self-destructive in the long run.

Kobarg, Wollersheim, Welpe, and Spörrle (2017) and Gieske et al. (2019) posit that it can pose a challenge when we want to exploit and explore sequential applications of exploitative and explorative innovations thus interfering with the expected and desired results in the public sector. For example, while public sector organisations are expected to be efficient in the processing of information (exploitative), they are equally expected to conduct explorative innovation activities such as introducing new services and digital technologies. However, given the varying stages of ambidextrousness in the public sector organisations as some either become more exploitative and less explorative, Kobarg et al. (2017) hold the view that our understanding remains limited as to how public sector organisations such as municipalities become ambidextrous and in this way are able to balance between exploitative and explorative innovation.

Unlike in the private sector, Boukamel and Emery (2017) argue that public sector organisations tend to favour exploitative innovation activities which are more reliable and certain compared to explorative innovation activities. Notably, Boukamel and Emery (2017) further acknowledge the view that explorative is synonymous with the concept of innovation. As such, for public sector organisations such as municipalities to realise the impact of Transformational Government there is need to embrace innovation. This is exacerbated by the ubiquity of digital technologies and Internet and a much demanding public for better services (Ochara, Belle, and Brown, 2008; Mawela et al. (2017). Despite the lack of consensus and a clear roadmap as to how organisations can attain the balance between exploitative and explorative innovation (O'Reilly, 2013; Nowacki and Monk, 2020), Boukamel and Emery (2017) acknowledge the need for public sector organisation to attain a balance between exploitative and explorative innovation if they are to become efficient. A study on technological exploitative and explorative innovation conducted by Brion Sébastien and Mothe (2016) and Ylinen (2019) suggests that it is always a challenge for an organisation to pursue flexibility and new knowledge while simultaneously promoting efficiency and the use of existing competencies. This may perhaps confirm the finding by Tuan (2017) who notes that municipalities generally exhibit more characteristics of exploitative innovation, which is also the case from the Zimbabwean context.

3.4.4 Balancing Exploitative and Explorative Innovation

Literature suggests that there is need to balance between the two concepts—exploitative and explorative innovation—because such a balance between the two concepts leads to Organisational Ambidexterity (Raisch and Birkinshaw (2008); Fladvad, Baer, and Lindkvist, 2019). As such, ambidextrous organisations are those that are capable of balancing the conflict between exploitative and explorative innovation, and they often prosper in the long run (Smith and Umans, 2015; Boukamel and Emery, 2017; Maine and Svensson, 2018). In the same vein, March (1991), Smith, Gupta and Shalley (2006) and (Hinings et al., 2018) suggest a trade-off as means of balancing the conflict between exploitative and explorative innovation activities.

Achieving a trade-off between exploitative and explorative has been found to be a challenging exercise as it requires that organisations become accustomed to their processes, culture and structure (Smith and Umans, 2015; Gastaldi and Appio, 2017; Adler, 2019). To address complexities associated with balancing of tension between exploitative and explorative innovation, Cannaerts, Segers and Henderickx (2016) and Umans, Smith, Andersson, and Planken (2018) suggest that there is need for organisations to properly and adequately address the competing and complementary forces.

3.4.4.1 Exploitative and Explorative Innovation as Competing Forces

It has been argued in the extant literature that managing the tensions between exploitative and explorative innovation depends on the extent the two forces are treated, either as competing or complementary forces (Raisch and Birkinshaw, 2008; Smith and Umans, 2015; Cannaerts, Segers, and Henderickx, 2016; Umans, Smith, Andersson, and Planken, 2018). In another similar study focusing on the public sector, Boukamel and Emery (2017) and Maine and Svensson (2018) suggest that the complementary return may be realised from making certain trade-offs associated with the execution of both the exploitative and explorative innovation activities simultaneously. In a way, that relates to the ability of an organisation to pursue and benefit from trade-offs simultaneously, and such earning the title ambidextrous organisations.

However, from the perspective of treating exploitative and explorative innovation as competing forces, it may suggest that attaining a trade-off between the two forces is unavoidable. Some of the major reasons advanced include competing for resources such funds, employees and knowledge among others (Gastaldi et al., 2018). For instance, over commitment of resources towards explorative innovation would mean fewer resources left for exploitative innovation,

and vice versa. Extending previous work, this study suggests that more focus on explorative radical digital innovation will possibly result in less focus on exploitative incremental digital innovation. Therefore, speaking to digital innovation, this will possibly imply that there is less of consistence logical designs and clear display of page contents from the digital government platform.

Drawing from the findings of other studies conducted in the context of public sector organisations, Tuan (2017) and Gieske et al. (2019) advance the notion that managing the conflicting nature of explorative and exploitative innovation may lead to organisations facing some challenges associated to incurring costs. In consensus, O'Reilly (2013) and (Hughes, 2018) also found that simultaneously managing the contradictory demands between explorative and exploitative innovation may burden and affect employees' cognitive abilities. Literature notes that benefits associated to explorative outweigh its costs. Despite the benefits associated to the pursuance of explorative, scholars argue that it always remains important not to treat explorative and exploitative innovation as competing activities but rather as complementary (Raisch and Birkinshaw, 2008; Luger, 2014; Hinings et al., 2018). It is also clear from previous studies that to manage the tension between explorative and exploitative innovation require a balance between the competing pressures of different organisational architectures (Luger, 2014; Liang et al., 2019). For instance, there is need for municipalities to treat the competing factors of exploitative and explorative innovation as complementary. This is because, pursuing an explorative digital innovation will always require that the organisations first embark on exploitative digital innovation. Similarly, scholars regularly explain how organisations use a combination of competing and complementary actions to balance the tension between explorative and exploitative innovation (Heirati, 2012; Gastaldi and Appio, 2017).

3.4.4.2 Exploitative and Explorative Innovation as Complementary Forces

In explaining the explorative and exploitative innovation complementarity effects on organisational performance, March (1991) and Smith and Umans (2015) argue that explorative innovation leads to returns realised on long term basis while exploitative innovation ensures short term returns. Consequently, the organisation that balances the conflicting nature of the two activities tends to enhance their performance. For instance, several scholars indicate that combining the two activities of explorative and exploitative innovation improves organisational performance (Raisch and Birkinshaw, 2008; Smith and Umans, 2015; Cannaerts, Segers, and Henderickx, 2016). However, explorative and exploitative innovation are viewed as two autonomous forces taking place in different spheres. As such, if the

conflicting nature of the two forces emanates from limited and scarce resources, that might be set aside. This is because, explorative and exploitative innovation complement each other in the sense that the benefits realised from explorative escalates with the contribution of exploitative innovation (Luger, 2014; Gastaldi et al., 2018).

Complementarity between the two forces may as well be achieved by way of pursuing exploitative innovation as that can promote the effectiveness of explorative innovation through deployment of existing procedures (Brion, Sébastien; Mothe, 2016). For instance, the existence of a non-interactive digital government plaform characterised by less digital innovation could form the basis for the introduction of an interactive platform which is characterised by more explorative digital innovation. However, the exercise of focusing and embracing the existing procedures results in better understanding and ultimately leading to the development of other new competencies that are explorative in nature (Maine and Svensson, 2018). From the previous work, Luger (2014) and Klinger (2016) explain that the pursuance of explorative and exploitative innovation as complementing forces lead to higher absorptive capacity enabling managers to exploit new knowledge and capabilities. For example, it can be suggested that, more understanding associated to the functionality of digital innovation may lead to the radical explorative, searching for new ways of improving, making the digital government platform more interactive and more citizen-centricity in an endeavour to create Transformational Governments. Nevertheless, scholars suggest that when explorative and exploitative innovations are treated as complementary forces, ambidexterity can be achieved through integrating both elements to address the challenges associated with managing explorative and exploitative innovation tension Zaidi and Othman, 2015; Brion, Sébastien; Mothe, 2016).

In the context of the current study, this may therefore suggest that in order to realise the impact of Transformational Governments, municipalities require that they embrace both exploitative digital innovation and explorative digital innovation. This will enable managers of municipalities to retain some degree of ambidextrous digital innovation which may possible lead to the realisation of Transformational Government.

3.5 Organisational Ambidexterity in the Public Sector

The concept of Organisational Ambidexterity has extensively been studied in the private sector, yet very little research specifically focused on the public sector organisations has been carried out (Smith and Umans 2015; Cannaerts, Segers, and Henderickx, 2016; Palm, 2017:Gieske, George, Meerkerk, and Buuren, 2019) despite the amount of effort public sector organisations have shown in approximating private sector business models. This change is

driven by the need for public sector organisations to become Transformational Governments. For example, citizens behave like customers who strive to ascertain that a number of public sector organisations like municipalities from the developed world constantly strive for efficiency and quality towards the creation of public value. Further, like their private sector counterparts, public sector organisations are expected to compete for scarce resources and ensure high levels of performance that will delight its citizens (Bodwell, 2011). Yet, from the extant literature, several scholars bemoan poor performance and high failure rate of Transformational Government projects depicted by some organisations in the public sector particularly from the developing countries such as Zimbabwe (Fan and Yang, 2015; Zinyama and Nhema, 2016; Mawela et al., 2017; Alshetewi, Alturise, and Karim, 2018). From the aforementioned arguments, this study on how Digital Government Ambidexterity influences Transformational Government becomes appropriate.

There are several studies that significantly stand out in relation to Organisational Ambidexterity in public sector organisations such as municipalities. The first, Cannaerts, Segers, and Henderickx (2016) in their comparative study analysing Organisational Ambidexterity of two small Belgian publicly funded cultural centres. From the first cultural centre results indicates that exploitative is not a goal in itself but a vehicle leading towards the implementation of explorative projects. This status quo, further qualifies the notion that exploitative and explorative innovations are treated as complementary forces in the public sector. The study concluded by highlighting that pursuance of explorative projects is a way that would lead organisations towards becoming more efficient especially where digital technologies were used (Gieske, George et al., 2019).

Findings from the second cultural centre indicate that more focus was on exploitative innovation as a way of developing and making activities that improved its financial efficiency, efficient use of scarce resources and employees. Unlike the first cultural centre, the second cultural centre did not consider explorative innovation on its activities hence making it non-innovative. These results are in consensus with Palm (2017) findings on public sector, who argue that the culture and structure in public sector is more exploitative and less explorative.

One of the few studies that connects Organisational Ambidexterity and public sector organisations is by (Smith and Umans, 2015). The research was conducted on 290 Swedish municipalities with specific focus on Organisational Ambidexterity and managerial focus such as entrepreneurial, leadership and stakeholder. In light of the above, two Swedish common organisational forms at local government level namely a local government administration

(LGA) and a local government corporation (LGC) were considered. In the context of Swedish municipalities, Smith and Umans (2015) highlights that local government administration are less autonomous as compared to local government corporation which are governed by both public and private sector laws. Local Government Corporation portrays an image of a business economic orientation and has limited political influence. Nonetheless, the main thrust of their study was to explore how managerial focus influences Organisational Ambidexterity, and as such, hypotheses regarding the connection between the managerial focus and Organisational Ambidexterity were developed for the two forms of local government.

A highlight of the findings was that when it comes to Organisational Ambidexterity, innovation matters although the results are somewhat mixed with regard to exploitative innovation, explorative innovation and Organisational Ambidexterity. For instance, the results indicated that, some innovations have a significant positive influence on Organisational Ambidexterity for both the local government administration and local government corporation. This is significant in the sense that it is one of the few studies in the Organisational Ambidexterity literature in support of the application of this concept in municipalities. This is because the call for public sector organisations like municipalities to reform and innovate has become ubiquitous (Choi and Chandler, 2015; Cannaerts, Segers and Henderickx, 2016). In addition, notwithstanding the enormousness reforms in municipalities, this study only discussed Transformational Government with specific focus on the extant utilisation of digital technologies in municipalities from the context of developing countries in Southern Africa.

Public sector organisations such as municipalities are somewhat unique in that they are compelled to contend with challenges of becoming Transformational Government in the quest of creating public value (Mawela, Ochara, and Twinomurinzi, 2017). Given the ubiquitous of digital technologies towards Transformational Government, every municipal is challenged to use them and to embrace digital innovation enabling the interaction of organisations and citizens, which according to Alshetewi, Alturise, and Karim (2018) helps to bring efficiency thereby creating public value. This could possibly suggest that municipalities should consider effective utilisation of Information and Communication Technologies such as the web portals. Paradoxically, as postulated in the recent United Nations (2018) report, the indicators are that Zimbabwe's EDGI index is declining despite the ubiquitous of digital technologies. However, if municipalities hope to somewhat overcome this digital government illogical state of affairs they should consider balancing exploitative digital innovation and explorative digital innovation tensions in order to realise the impact of Transformational Governments.

3.6 Role of Innovation

Innovation is viewed by Choi and Chandler (2015) as changes in culture, processes and services. Further, it is the process through which organisations identify new opportunities, improve performance through the utilisation of existing and new knowledge (De Vries, Bekkers, and Tummers, 2016). In the same vein, innovation also relates to novel ways of doing and perceiving things, thus the development of new perspectives from old concepts (Preda, 2014; Gieske et al., 2019). More so, the ability to innovate has been seen as a major contributing factor to the success of many organisations. Innovation is also viewed as robustness and propensity of an organisation to engage in creative development that may lead to new products or services or digital development (Carayannis et al., 2017). Choi and Chandler (2015), De Vries, Bekkers and Tummers (2016) and Barrutia and Echebarria (2019) argue that innovation is the identification of new opportunities through utilisation of existing knowledge and making systems revisions as means of enhancing organisational performance. Consequently, in the absence of innovation, it becomes almost impossible for organisations to adapt and respond to ever changing environmental variations.

Literature notes that municipalities cannot be complete without innovation since this is viewed to be a significant determinant in Transformational Government (Boukamel and Emery, 2017). In the quest of realising the impact of Transformational Government, municipalities need to be innovative so as to fully utilise their digital technologies and innovatively tailor-make them so that they become citizen-centric (Karkin, Yavuz, Cubuk, and Golukcetin, 2018).

Given the unpredictable changes on citizens' needs and service technologies, innovation is viewed as the key remedy in dealing with related uncertainties (Preda, 2014; Brion, Sébastien; Mothe, 2016). Further, drawing from the outcomes, it can be asserted that innovations may be incremental or radical, meaning refinement and extension of existing competencies, technologies, or continuous experimentation with new technologies heralding a departure from existing practice. Interestingly, some scholars hold the view that, the difference between radical and incremental innovation is easier to intuit than to define or measure (Heeks, 2006; Karkin, Yavuz, Cubuk, and Golukcetin, 2018). Furthermore, individuals and organisations may differ in their classifications of innovations either based on their expertise or experience. For municipalities, radical digital innovation resonates well with the use of digital government platforms (web portals) which are interactive, that enables a two way communication between citizens and service providers.

Innovation plays a significant role in promoting Transformational Government in the public sector organisations such as municipalities (Boukamel and Emery, 2017; Alshetewi et al.,

2018; Gieske et al., 2019). As such, without innovation organisations will not be adaptive and responsive to dynamic environmental changes that are partly characterised by ever changing citizen's needs. Several scholars observe that, innovation plays a significant role towards improving organisational processes thereby enhancing public value (De Vries et al., 2016; Boukamel and Emery, 2017; Coccia and Coccia, 2017; Barrutia and Echebarria, 2019). For instance, exploitative digital innovation should be viewed as the provision of information that is made simply to understand and found useful by the end users.

3.6.1 Digital Innovation

Literature suggests that various literature streams on Organisational Ambidexterity focusing on the contradictions between exploitative and explorative innovation as well as the need to reconcile the two forces have been widely explored (Raisch and Birkinshaw, 2008; Umans et al., 2018; Gieske et al., 2019). Such literature streams explored on organisational ambiexterity include organisational learning, digital innovation, organisational adaptation, strategic management and organisational design. However, of particular concern in this current study is digital innovations and their suggested incremental and radical nature. Notably, digital innovation is viewed as the development and embracement of new products, new processes, new platforms, or even new business models in a given context (Hinings et al., 2018). Further, digital innovation is achieved through leveraging of digital technologies. While organisational innovation may involve a broad spectrum of organisational activities such as structure and processes, this study focuses on how municipalities can enhance public value through effective utilisation of new digital technologies, new technological knowledge and ideas into new products and services (Boukamel and Emery, 2017;Lember, Kattel, and Tõnurist, 2018; Gieske et al., 2019; Nowacki and Monk, 2020). In view of the foregoing discussion, focusing on digital innovation which is only a subset of organisational innovation makes this study more manageable.

The concept of digital innovation reflect on the distinction between the refinement and improving existing technologies, designs, processes, products or servises and the introduction of new digital technologies, innovative ideas that significantly depart from past practices (Boukamel and Emery, 2017; Kar et al., 2019). Further, it is considered the most significant source of organisational efficiency (Lember, Kattel and Tõnurist, 2018). More so, from the extant literature, organisations in the private sector have successfully changed their work organisation through utilisation of different digital technologies.

Given the digital innovation success stories from the private sector, there is growing pressure for the public sector to innovate through utilisation of digital technologies. Nevertheless, digital

innovation is fairly more task oriented or technological focused. For instance, the major focus is on the digital technologies that organisations such as municipalities utilise to realise the impact of Transformational Government through infromation quality and public value. Such digital technologies may include among other things digital government platforms used to process and disseminate information in an interactive two way communication with citizens. More so, Orlikowski (1991) hold the view that organisations attempting to becoming efficient and effective may attempt to innovate through either process or product (Hinings et al., 2018;Barrutia and Echebarria, 2019). Such type of innovation, if adopted, could either be incremental or radical. Notable, the literature on digital innovation is the distinction between incremental and radical innovation (Raisch and Birkinshaw, 2008; Preda, 2014; Karkin, Yavuz, Cubuk, and Golukcetin, 2018).

The concept of incremental and radical innovation is viewed by Dewar and Dutton (1986), Orlikowski (1991) and Fladvad et al. (2019) as easier to intuit than to define. This is so because, the distinction between two concepts merely rely on one's perception of something innovative, as two different individuals may have different perceptions on what characterises innovation, based on their expertise or experience (Dewar and Dutton, 1986). However, incremental innovation introduces minor adjustments or changes to products or services and buttresses the existing practices. Conversely, radical innovation focuses on different set of principles, and that could be through the introduction of new ways of doing things reflecting a significant departure from the norms (Karkin, Yavuz, Cubuk, and Golukcetin, 2018). For example, Dewar and Dutton (1986) consider the process of producing documents using an electric typewriter over manual typewriter as incremental innovation as that activity does not considerably influence the work process. Whereas, the use of a word processing computer in producing documents is considered to be a radical innovation over the manual typewriter because of different activities required to execute the work.

3.6.2 Exploitative Incremental Innovation

Exploitative incremental technological innovation is understood as the refinement and extension of existing competencies, ICTs and paradigms within an organisation (March, 1991; Cannaerts et al., 2016). Whereas Kratzer (2017) and Helbin (2019) suggest that exploitative incremental innovation entails extensions of existing products or services through minor changes that are pleasing to customers. More so, it is further suggested that the exploitative incremental innovation benefits customers in the short run due to low risks and opportunities associated with it compared to radical innovation. It endeavours to create public value at the rate in line with prevailing technological trajectories.

In the same vein, Smith and Umans (2015) and Karkin et al. (2018) emphasise that incremental innovation relates to minor improvements or simple adjustments in the current technology, processes or digital government programme. John (2007) and Fladvad et al.(2019) hold the view that exploitative incremental innovation relates to refinements or improvements to existing technology. Therefore, this is seen as the ability of an organisation to make minor changes or improvements on the existing digital technologies or services using existing resources. For example, Dewar and Dutton (1986) gave an illustration of new versions of a software product as an incremental innovation. This is because such innovations improve existing features to the software, for instance, when talking about exploitative incremental digital innovation through adding or painting icons on the web portal with different colours. Whereas pursuing explorative radical digital innovation is leveraged through adding interactive features such as online payment options to the web portal. This will create a departure from the traditional norms of visiting brick and mortar structures and create an environment where citizens transact in the comfort of their homes.

With regard to exploitative incremental innovation in the public sector context, municipalities can instigate some minor alterations to their digital technologies, as an attempt to improve information quality thereby creating public value. For instance, this may include among other things, consistence of webpage design, logical web portal information, clear display of page contents, services image clearly provided and clear menu items on each page with defining icons for ease of use and content clarity (Ziemba, Papaj, and Descours, 2014; Verkijika and De Wet, 2018). Indeed, with this in mind, the aforementioned factors will describe an ideal incremental digital innovation.

3.6.3 Explorative Radical Innovation

Explorative radical innovation relates to continuous innovative experimentation with transformative new digital technologies that promote organisational efficiency (March, 1991; Preda, 2014; Cannaerts et al., 2016; Alghamdi, 2018). This type of radical innovation can be addressed through the introduction of new digital technologies, improving existing technologies and new ways of disseminating information to citizens (Preda, 2014; Zaidi and Othman, 2015; Cannaerts, Segers, and Henderickx, 2016; Zaidi, 2017). As an illustration, Raisch and Birkinshaw (2008), Preda (2014) and Brion, Sébastien and Mothe, (2016) posit that radical innovation represents a significant departure from existing practice or knowledge. This relates to that kind of radical digital innovation which will see, for example citizens transacting in the comfort of their home, unlike the current status quo where every citizen should converge to municipal revenue halls in search of services and processing payments

handled over-the-counters. Similarly, Dewar and Dutton (1986) suggested a different software design introduced as a radical innovation because different competencies and procedures may be required. In the same vein, Kratzer (2017) suggests that radical innovation relates to applications of new technologies that create new experiences for customers in the long run. In the context of municipalities, radical digital innovation characterised by interactivity is likely going to enhance public value.

Further, the presence of digital innovation viewed through interactive municipal digital technologies should enable citizens to make online payments, something indicative of a departure from traditional methods of making over-the-counter payments. In addition, an optimised digital government platform (web portal) for different communication devices points to radical digital innovation. This may as well include digital innovation enhanced through new software and other communication platforms integrated into municipal digital government platform, such as Geographic Information System (GIS), Facebook, Instagram and Twitter for better quality of information (Li and Feeney, 2014). As means of improving on quality of information, municipal coders can as well develop an integrated system, such as the BIQ system which is an Enterprise Resource Planning system that enables accessibility of information from a single portfolio by citizens, thus a one-stop service (Auditor-General Zimbabwe, 2016; Hinings et al., 2018). This digital integrated system may for example bring together products such as business licences, vehicle registrations, property titles, rates and levy accounts. This status quo will enable citizens' access of municipal information anytime convenient to them and possibly improve the revenue bases. Accordingly, for the purposes of the current study explorative radical digital innovation encompass factors such as the availability of payment options, integration of social media or GIS to the web portal, web portal optimised for different communication devices, indication of security and assurance of privacy such as the installation of Secure Sockets Layer (SSL). certificate

3.7 Summary of Research Gaps

In view of the aforementioned discussions in the current chapter, notably, several studies on Organisational Ambidexterity in municipalities predominantly focused on other literature streams of the concept such as organisational adaptation, strategic management, organisational design, organisational learning with less focus on the digital innovation stream (Raisch and Birkinshaw, 2008; Boukamel and Emery, 2017; Gieske et al., 2019). Further, there is paucity of studies which handled the concept of Organisational Ambidexterity as the predictor, instead the concept was largely treated as an outcome variable.

Contextually, there is dearth of studies which focused on Organisational Ambidexterity in relation to municipalities from developing nations, and lack of convergence of scholarly opinion as to which of the two constructs of Organisational Ambidexterity (exploitative and explorative innovation) is more suitable and applicable within the context of Transformational Government.

With regards to the public sector, several scholars argue that balancing the two perspectives may not yield the anticipated results, as it can be found challenging, whereas other scholars suggest that balancing the two perspectives is the most ideal for the success of any organisation (Smith and Umans, 2015; Boukamel and Emery, 2017; Maine and Svensson, 2018; Fladvad et al., 2019; Nowacki and Monk, 2020). Additionally, there are also divergent views as to which of the perspectives presents better outcomes, for instance, one scholary opinion suggest that too much focus on exploitative innovation leads to inertia, whereas too much focus on explorative innovation leads to future building but disregarding the current business processes.

Boukamel and Emery (2017) and Cannaerts, Segers and Warsen (2019) hold the view that municipalities from developing world tend to exhibit more of exploitative innovation and none of explorative innovation. However, the current study brought up an interesting perspective where the two apparently constrasting forces of Organisational Ambidexterity are tested to establish whether they may be applied simultaneously.

3.8 Chapter Summary

The chapter provided a background description of the concept of ambidexterity as may be applied for the notions of Organisational Ambidexterity and Digital Government Ambidexterity. This is followed by an overview of Organisational Ambidexterity and the state of Digital Government Ambidexterity in the context of Zimbabwean municipalities. A detailed review of exploitative incremental innovation, explorative radical innovation and the tension between the two concepts were presented to understand how they can influence Transformational Government in municipalities. Specifically, the study focused on ambidextrous digital innovation which speaks to the simultaneous pursuance of exploitative and explorative innovations. A detailed presentation operationalising ambidextrous digital innovation through digital government platforms (web portals) to further enhance the understanding the concept was done.

The two constructs of exploitative and explorative innovation explain the type of incremental digital innovation and radical digital innovation that municipalities should adopt in an

endeavour to promote information quality and the creation of public value thereby leading to Transformational Government. The concept of exploitative incremental digital innovation was viewed through the lens of a non-interactive digital government platform whereas explorative radical digital innovation was viewed through the lens of an interactive digital government platform. A detailed review of an exploitative incremental digital innovation (non-interactive) and a radical digital innovation (interactive) was presented to equip the reader with the context on which the study is based. This was viewed through digital government platform.

Lastly, a review of municipal ambidextrous non-interactive and interactive factors influencing Transformational Government in the Zimbabwean context was presented. Several scholars have emphasised the significance of explorative radical digital innovation in realising the impact of Transformational Government (Heo, 2007; Kim and Kuljis, 2014; Verkijika and De Wet, 2018). Their principal focus was to view digital innovation through examining digital government platform interactivity with a likelihood of promoting information quality (Verkijika and De Wet, 2018).

3.9 Presentation of Research Hypotheses

From the research objectives shown above, the researcher formulated the following hypotheses which were tested;

- **H_o1**: Exploitative incremental digital innovation does not positively influence municipal information quality.
- **H_a1**: Exploitative incremental digital innovation positively influences municipal information quality.
- **H_o2**: Explorative radical digital innovation does not positively influence municipal information quality.
- **H_a2**: Explorative radical digital innovation positively influences municipal information quality.
- **H_o3**: Information completeness does not positively affect the relationship between exploitative incremental digital innovation and public value.
- **H_a3**: Information completeness positively affects the relationship between exploitative incremental digital innovation and public value.
- **H_o4**: Information completeness does not positively affect the relationship between explorative radical digital innovation and public value.
- **H_a4**: Information completeness positively affects the relationship between explorative radical digital innovation and public value.

- **H_o5**: Information readability does not positively affect the relationship between exploitative incremental digital innovation and public value.
- **H_a5**: Information readability positively affects the relationship between exploitative incremental digital innovation and public value.
- **H_o6**: Information readability does not positively affect the relationship between explorative radical digital innovation and public value.
- **H_a6**: Information readability positively affects the relationship between explorative radical digital innovation and public value.
- **H_o7**: Information relevance does not positively affect the relationship between exploitative incremental digital innovation and public value.
- **H_a7**: Information relevance positively affects the relationship between exploitative incremental digital innovation and public value.
- **H_o8**: Information relevance does not positively affect the relationship between explorative radical digital innovation and public value.
- **H_a8**: Information relevance positively affects the relationship between explorative radical digital innovation and public value.
- **H_o9**: Information trustworthiness does not positively affect the relationship between exploitative incremental digital innovation and public value.
- **H_a9**: Information trustworthiness positively affects the relationship between exploitative incremental digital innovation and public value.
- **H_o10**: Information trustworthiness does not positively affect the relationship between explorative radical digital innovation and public value.
- **H_a10**: Information trustworthiness positively affects the relationship between explorative radical digital innovation and public value.
- **H_o11**: Information usability does not positively affect the relationship between exploitative incremental digital innovation and public value.
- **H_a11**: Information usability positively affects the relationship between exploitative incremental digital innovation and public value.
- **H_o12**: Information usability does not positively affect the relationship between explorative radical digital innovation and public value.
- **H_a12**: Information usability positively affects the relationship between explorative radical digital innovation and public value.
- **H_o13**: Exploitative incremental digital innovation does not positively affect public value.
- **H_a13**: Exploitative incremental digital innovation positively affects public value.

- **H_o14**: Explorative radical digital innovation does not positively affect public value
- **H_a14**: Explorative radical digital innovation positively affects public value.

CHAPTER FOUR

RESEARCH FRAMEWORK

4.1 Introduction

This section provides theoretical underpinnings and the proposed conceptual framework of the current study. The core concepts that inform this study are Organisational Ambidexterity and Transfomational Government. Notably, the concept of Organisational Ambidexterity was viewed through Digital Government Ambidexterity, whereas Transformational Government was viewed through municipal information quality and public value. This is followed by separate demonstrations of municipal information quality and public value model that inform the conceptual framework of the current study. These models are buttressed with detailed discussions of the concepts used therein. For instance, information quality was reviewed through its observable variables or dimensions such as; information usability, information readability, information relevance, information trustworthiness, and information completeness. Public value has been discussed based on the modified model of public value by Talbot (2008) and Marek (2016) studies. The current study adapted a model on competing quadrant of control, compete, create and collaborate.

4.2 Transformational Government and Information Systems Success model

The current study utilised DeLone and McLean (2016) (D&M) IS Success model in assessing Transformational Government for the creation of public value. Information System (IS) model aids managers in establishing whether the systems address organisational goals through effective design, delivery, use and influence of information technologies in organisations and society at large (Delone and Mclean, 2003;Gregor, 2006). In some sense, the IS model assesses the effective development, dissemination and utilisation of information via digital technologies to users. D&M IS Success model is comprehensive and multidimensional, and it measures several factors that speak to the effectiveness of information to the user (Delone and Mclean, 2003;Gregor, 2006). Such factors include, systems quality which ascertains digital success, information quality which measures semantic success, use, which measures user satisfaction, and organisation effectiveness(Petter,DeLone, & McLean, 2008; DeLone and McLean, 2016). In addressing research objectives, analysis, explanation and prediction theory types of Information Systems were applied. The motivation behind the choice of three theory types of Information Systems was that they provide greater understanding of the phenomena through description, analysis of relationships among constructs and varying views

of causality (Gregor, 2006). Further, the theory types enables the establishment of the degree of generalisability in constructs and relationships (Gregor, 2006). Lastly, the theory type of prediction would allow the study to predict the relationship between Organisational Ambidexterity and Transformational Government.

In an endeavour to assess the effect of Digital Government Ambidexterity, information quality and public value, the current study proposes to focus on investigating the influence of Digital Government Ambidexterity on Transformational Government towards public value in municipalities. Transformational Government focuses on evaluating the benefits of digital government platforms employed in the public sector. Literature outlines several elements at the epicentre of Transformational Government such as citizen-centricity, efficiency, one-stop services, organisational change, value innovation, multiple channel service delivery (Lips, 2017; Kamaruddin and MdNoor, 2017; Alshetewi et al., 2018).

The theoretical foundations for research on informations systems success have been linked to propositions by Delone and McLean (2003) in which they emphasize that the quality of a system and the quality of information are both the main factors that determine user satisfaction and the success of information systems. These factors directly influence the users' response and benefits for users. The information quality perspective was adopted as the basis for seeking to determine the "success" of the digital government portals, as a proxy logic that can be used to explain derivation of value.

This is in line with Orlikowski, Wanda, and Iacono (2001), who consider that determination of success can be viewed from a 'proxy' perspective, in which the perceptual, cognitive, and attitudinal responses to how computing resources are used are the critical variables in explaining technology and its effects in the world. Thus, in seeking an explanation of the nature of Digital Government Ambidexterity as an antecedent to Public Value (PV) creation, the dimension of information quality of digital government platforms is key as a proxy for evaluating the nature of Transformational Government. The digital government platform is considered as a proxy to the digital government innovation since they serve as a gateway that supports access to information by organising the information in a uniform way and providing services for resource discovery, such as search engines, indexes and pathways to the information via web front ends. Thus, these digital government platforms operate as hubs for the aggregation of information and often provide interfaces for others to add new information to the service (Hider, Given, & Scifleet, 2014).

4.3 Digital Ambidexterity and Public Value

The concept of public value as developed by Moore and Khagram (2004) relates to the value for the public as a result of evaluations about how basic needs of individuals, groups and the society as a whole are influenced in relationships involving the public (Meynhardt 2015). As part of realising Transformational Government, public value focuses on mechanism that helps citizens understand their societal environment, and also aids governments realise the potential of sustaining trust and legitimate action (Talbot, 2008; Marek, 2016). This points to digital innovation successes in shaping and influencing governments towards the realisation of Tansfomational Government.

Public value is therefore considered as the outcome of Digital Government Ambidexterity in public sector institutions. The idea of public value recognizes that the mission of public sector institutions is non-profit oriented in nature; rather public sector institutions are considered as creators of social, cultural, knowledge values. Thus, the measure of public value is non-financial. Jørgensen & Bozeman (2007) identifies specific values linked to: the transformation of decision interest; the relationship between the public administration and politicians, the environment and the public; and, finally, the values associated with the behaviour of public sector employees. For Moore (1995), public entities create public values by engaging in exploitative and explorative innovation activities that result in positive effects, both economically and socially. Economic values are prevalent when the focus is on exploitative innovation; while explorative innovation is the focus when social value thinking prevails (Barrutia and Echebarria, 2019). Thus, a combination of both exploitative and explorative innovation activities is likely to result in various public values.

4.4 Digital Ambidexterity and Dynamic Capabilities

The study engaged the theory of dynamic capabilities to understand how organisations are able to exercise the ability to explore new ways of doing things while being able to main internal and external competences. The theory of dynamic capability was conceived and gained prominence through the work of Teece and Pisano (1994). The theory has been used in the context of understanding the concept of innovation and the purpose of digital technologies towards achieving Transformational Government. The theory of dynamic capabilities is seldom used in the discussion that covers areas to do with ambidextrous digital innovation.

Dynamic capability (DC) refers to the ability to integrate, build and reconfigure internal and external competencies to address the fast changing environment (Simon *et al.*, 2015; Alghamdi, 2018). This may refer to the organisation's ability to achieve optimal performance through integrating and developing competencies in an attempt to address changes inline with

fast and dynamic demands of citizens. Teece and Pisano (1994) study on dynamic capabilities ushered in a new debate amongst academics, highlighting short comings associated with resource based view (Pisano,2016; Owoseni, 2019). The shortcomings associated with resource-based view are the motivation behind dynamic capabilities theory. Resource based view underemphasises the significance of external business environment, hence the need for dynamic capability theory which attempts to bridge the gap between the institutional resources and a rapidly changing environment which may call for innovation (Wang, Senaratne, and Rafiq, 2015; Kaur, 2017).

In this regard, the concept of Organisational Ambidexterity is understood to be engrained in dynamic capabilities. More so, it is argued that the theory of dynamic capabilities is embedded in the streams of innovation through exploitating existing capabilities and exploring of new capabilities (He and Wong, 2004; Wang et al., 2015; Alghamdi, 2018). Nevertheless, it is a highly contemplated phenomenon that the provision of sound Transformational Government may rely on identifiable litereature streams on Organisational Ambidexterity, but the application of dynamic capabilities theory may present a different prespective on the relationship of the two concepts.

4.4.1 Application of Dynamic Capabilities Theory

For the current study, the dynamic capability theory is an important centrepiece concept. What makes this theory fundamental for this study is its focus that calls for organisations to simultaneously exercise ability to explore new ways of doing things as well as the ability to exploit new existing capabilities (Kaur, 2017). Similarly, Preda (2014) holds the view that dynamic capabilities are embedded in simultaneous flows of exploratory and exploitative innovation. In the same vein, Owoseni, Twinomurinzi, and Salami (2017) and Owoseni (2019) argue that dynamic capabilities are intangible capabilities that can be developed or learned, and generally follow three dimensions namely: the adaptive, absorptive or innovative capabilities. Further Boukamel and Emery (2017) argue that innovation is the ability to synthesise the competing two paradigms of exploitative and explorative hoping to enhance efficiency and effective service delivery.

There is a growing body of literature that acknowledges the importance of innovation in the public sector, as they try to address pressing citizens' needs and ensure public value (De Vries et al., 2016; Boukamel and Emery, 2017; Lewis, Ricard, Klijn, and Ysa, 2017; Owoseni, 2019). Uncontested within the perspective of municipalities, these organisations are under immense pressure to interact with citizens in an endeavour to address increasing societal expectations. Part of these societal needs and expectations are related to quality digital service delivery

which can be achieved by embracing digital innovation leveraged through full utilisation of digital technologies. However, notwithstanding the ubiquity of digital technologies in municipalities, most of these municipalities still exhibit signs that point to lack of digital innovativeness, which could be logical to assume that ambidextrous digital innovativeness is required. Further, lack of ambidextrous digital innovativeness could be viewed as a matter that hinders the success of Transformational Government initiatives in municipalities mostly from the developing countries.

Findings from previous studies undertaken in the developed world reveal that municipalities are places where innovations take place because of their closeness to the citizens (De Vries et al., 2016; Manoharan, Zheng, and Melitski, 2017; Lewis et al., 2017). More so, in the context of the current study, digital innovativeness is viewed from the perspective of an organisations' ability to be ambidextrous through the simultaneous pursuance of exploitative and explorative innovation, a phenomenon that may be a vehicle for effective resourcing towards the development of these organisations and improving the lives of citizens.

Presented in Table 4.1, are several theories of Organisational Ambidexterity, Information System and Public Value from which the three theories informing the current study were selected. Also, justification of selecting the three theories namely; Dynamic capabilities, D&M IS Success model and Public Value is provided.

4.4.2 Comparative Analysis of Theories of OA, IS and PV

Table 4.1 presents a comparative analysis of reviewed theories informing the concepts of Organisational Ambidexterity, Information quality and public value. It provides justification as to how the three theories informing the study were selected.

Table 4.1: Reviewed theories

Theories	Focus and justification
Organisational Ambidexterity theories	
Ambidexterity theory	Focuses on how organisations realise ambidexterity, for instance, how they can handle the two perspectives of structural and contextual ambidexterity (Cannaerts et al., 2019)
Dynamic Capabilities theory	Dynamic capabilities have been defined as "the capacity to renew competencies so as to achieve congruence with the changing business environment" by "adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competencies" (Teece et al., 1997). This speak to the organisation's capability to persistently develop and modify its resources. Three key types of capabilities namely, adaptive, innovative and absorptive encapsulate Dynamic capabilities.
Paradox theory	It suggests that whether the contradictory tension between exploitative digital innovation and explorative digital innovation should be treated as complementary or competing forces.
Resource Based View	Focuses on the interior structure of the organization, as well as its resources and capabilities that will better meet the emerging challenges. Its short comings are associated to the exclusion of the external environment.
Public Value theories	
Public value theory	The concept of public value as developed by Moore and Khagram (2004) relates to the value for the public as a result of evaluations about how basic needs of individuals, groups and the society as a whole are influenced in relationships involving the public (Meynhardt 2015)
Stakeholder theory	The theory state that every business has a responsibility to the stakeholders of the organisation.
Institutional theory	Predominantly places emphasis on how organisations adopt structures and practices.
Information System theories	
D&M IS Success Model	D&M IS Success model is comprehensive and multidimensional, and it measures several factors such as systems and information quality, use satisfaction and organisational effectiveness that speak to the effectiveness of information to the user (DeLone & McLean, 2003).
Structuration theory	Structuration theory has been instrumental theory mainly to understand how users' interactions with IT evolve, these interactions' organizational implications, and how we can try to deal with their intended and unintended consequences. The theory is limited when it comes to systems and information quality perspectives.
Unified Theory of Acceptable Use of Technology (UTAUT-2)	Explains seven behavioural intention predictors that influence the adoption and usage of technologies(Venkatesh, Morris, Davis, & Davis, 2003) (Venkatesh et al., 2003). In the Zimbabwean context, citizens have gone beyond the adoption of technologies stage

4.4.2.1 Motivation for the use of DC, D&M IS Success and PV Theories

The study has discussed the use of a number of theoretical framework of Orgainational Ambidexterity (OA), Information Systems (IS) and Public Value (PV). All have been used in studies focusing on the three concepts. Regarding to theories used on Organisational Ambidexterity, resource based view present the least likely candidate to bring out a comprehensive understanding of organisational capabilities that may influence Transformational Government. Ambidexterity and Paradox theories are likely to provide a way of treating exploitative and explorative as competing or complementary forces, but unlikely to lead to clear understanding of the external environmental detects processes involved. Dynamic capabilities would allow the research work to revolve around both the external and internal environmental dynamics towards digital innovations.

In respect to Information System, UTAUT-2 presents the least likely candidate to bring out an understanding of the process of promoting Transformational Government initiatives as its focus is primarly on the behaviour intentions towards adoption and usage of digital technologies. Structuration theory is likely to present a rather shallow way of understanding the influence of Transformational Government towards realisation of Public values. D&M IS Success model has been widely used in Information Systems research, and would allow the researcher to measure systems, information quality, and also reflect on realised public values factors deemed critical in promoting Transformational Government.

At the bottom of the list of Public value theories is Institutional theory. It focuses on how organisations adopt structures and practices, whereas stakeholder theory focuses on the organisations' responsibilities on it customers, employees and government. Public value theory would allow the researcher to evaluate how basic needs of individuals, groups and the society as a whole are influenced in relationships involving the public through Transformational Government.

4.5 Theoretical Underpinnings

In order for this study to identify Digital Government Ambidexterity and Transformational Government driving factors, the development of the conceptual framework became noteworthy because of the gaps identified in literature previously reviewed in the context of public sector organisations. Having reviewed relevant literature, the researcher made use of an appropriate conceptual framework consisting of three parts: Digital Government Ambidexterity, information quality and public value. Notably, these identified parts inform the two concepts of Organisational Ambidexterity and Transformational Government.

The concept of digital government has gained momentum in the 21st century (Henman and Graham, 2019). The emergence and dominance of digital government platforms were seen as an evolution of digital government reforms taking place in the public sector (Ylinen, 2019). Such reforms are reflected through what can be achieved by using these digital technologies. Since the current study focused on investigating the influence of Digital Government Ambidexterity on Transformational Government, from the examined literature it is suggested that digital government alone may not sufficiently present expected efficiencies that may satisfy citizens' needs (Hughes, 2018; Cannaerts et al., 2019; Helbin, 2019).

There are illuminating calls for the public sector to embrace the concept of Digital Government Ambidexterity in their quest towards realisation of Transformational Government (Coccia and Coccia, 2017). Digital Government Ambidexterity is regarded as a process that entails an organisation's ability to respond efficiently in the management of everyday business demands while simultaneously being adaptive to dynamic changes in the environment (Boukamel and Emery, 2017). Digital Government Ambidexterity focuses on assessing the effects of balancing exploitative and explorative innovations. Scholars argue that ambidexterity is a significant antecedent of innovation, and as such, exploitative and explorative innovations provide the lens through which Digital Government Ambidexterity is viewed (Smith and Umans, 2015; Boukamel and Emery, 2017; Coccia and Coccia, 2017; Alghamdi, 2018). Digital Government Ambidexterity is deeply grounded in the streams of innovation focusing on attaining high levels of efficiency towards creating public value.

Such innovation streams strive towards the realisation of exploitative and explorative digital innovation in achieving sustainable successes in the long run (Boukamel and Emery, 2017). In enhancing the understanding of Digital Government Ambidexterity innovations, the theory of dynamic capabilities was used. The theory of dynamic capabilities allows for more practical guidelines for decision-makers to embark on, in view of the rapid environmental changes that demand for innovative capabilities (Wang, Senaratne, and Rafiq, 2015;.Smith and Umans, 2015). Given the advancements of digital government driving organisations towards Transformational Government, organisations are continuously experiencing accelerated macro and micro environmental challenges which demand that they become dynamic and adaptive (Smith and Umans, 2015; Alghamdi, 2018). Consequently, it is imperative for organisations to constantly adapt to external and internal environments through exploitation and exploration of opportunities, and react with innovation orientations on digital government. Examined literature on Organisational Ambidexterity claims that ambidextrous organisations succeed within dynamic environment (Boukamel and Emery, 2017; Alghamdi, 2018).

Digital Government Ambidexterity is suggested to be a significant factor towards realisation of Transformational Government. Transformational Government (T-Gov) entails the delivery of modernised and highly interactive public services designed around the needs of citizens (Kamaruddin and MdNoor, 2017). T-Gov goes beyong the mere creation of digital government platforms, but it emphasises the need to redesign these platforms towards citizen-centricity. According to Kamaruddin and MdNoor (2017), T-Gov is a new paradigm that advocates for citizen-centricity through the provision of one-stop services, enable citizens to become co-creators of content and services. This is further achieved by intergrating back office architecture through the use of information and digital technologies.

The aforementioned process points to matters which form the basis for the theoretical underpinnings of this study, and these are the change processes realised from a transformed public sector in which digital government technologies are applied (Kamaruddin and MdNoor, 2017; Alshetewi et al., 2018). The realisation of transformation is engrained in the digital government artifacts which are regarded as the proxty to T-Gov, with the main focus being on how these artifacts can become ambidextrous. In view of the aforementioned statement, this study suggests that in the realisation of Transformational Government, DeLone and McLean (DandM) IS Success model becomes significant (Sterrenberg and Keating, 2016).

The model is widely used in the analysis of technical factors which contribute to the success of Information Systems projects, and these are information quality and systems quality (Alzahrani, Al-Karaghouli, and Weerakkody, 2017). To this end, IS Success is predominantly used in the evaluation of digital government platform applications such as the web portals.Thus for the success of T-Gov, information quality and public value are considered significant. Past research argues that Digital Government Ambidexterity leads to a realisation of expected results and public values (Gil-Garcia et al., 2018; Castelnovo and Sorrentino, 2018; Liang et al., 2019). In the context of the current study, T-Gov is visible in the creation of public value, and the proposed model is mediated by the concept of municipal information quality. However, taking a socio-technical perspective, digital government enabled reforms inform efficiency which promotes a responsive and trustworthy government that make relevant information available to citzens (Ferlie et al., 2019). In some sense, public value, as a notion, may be conceptualised in terms of holding relevant to matters that add value to the public. Thus, the current study adopts the concept derived from the public value theory as the theoretical underpinning the outcome variable of public value.

4.6 Operationalisation of Ambidextrous Digital Innovation

The concept of Organisational Ambidexterity has been measured differently from the management literature. For instance, some scholars focused on the organisation's capacity to carryout something (Huang, 2008; Raisch and Birkinshaw, 2008), whereas some studies measured the organisation's inclination to do something (O'Reilly, 2013; Smith and Umans, 2015; Boukamel and Emery, 2017). Further some scholars measured what is actual taking place in the organisation, thus what organisations do (Brion, Sébastien and Mothe, 2016; Palm and Lilja, 2017; Parikh and Bhatnagar, 2018; Cannaerts, Segers, and Warsen, 2019).

At the core of Digital Government Ambidexterity, is the organisation's ability to simultaneously pursue exploitative incremental digital innovation and explorative radical digital innovation (Dewar and Dutton, 1986; Coccia and Coccia, 2017; Lember et al., 2018). In the context of the current study, specific characteristics of digital innovation are used, for instance, a non-interactive web portal denotes an exploitative digital innovation whereas an interactive web portal denotes an explorative digital innovation. This therefore suggests that, an ambidextrous digital innovation is achieved through the ability to continuously improve informational features of the digital government platform whilst developing, integrating and adding new interactive programmes to the platform.

4.7 Digital Government Policy

Drawing from the National ICT policy, it is generally expected that all public sector organisations including municipalities must have in place digital government (D-gov) policies. Notably, depending on an organisation's outlook, some may choose to refer to digital government policy as ICT policy. For the purposes of the current study, the term digital government policy shall be adopted in reference to the above conception.

Table 4.1 (page 76) indicates municipalities which implemented their digital government policies except for one, Gweru City Council, whose policy was said to be at a drafting stage awaiting consideration by relevant committees within the municipal. Notably, all the municipalities considered under the current study indicated the existence of ICT departments.

Table 4.1: A schedule for digital government policy implementation

Municipal	Implementation of digital government policy
City of Bulawayo	Yes – implemented
City of Gweru	No – policy in the draft stage
Victoria Falls municipal	Yes – implemented

Source: Municipal ICT departments

The role of digital government policy is to provide a framework for an enabling environment where organisations continuous embrace digital innovations in order to enhance information quality that may possibly lead to public value.

Nevertheless, the presence and implementation of digital government policy in any organisation provides an enabling environment towards facilitating planning, designing and implementation of Transformational Government initiatives (Zimbabwe National Policy for Information and Communication Technology, 2015; Nhema, 2016). It is expected that digital government policy clearly outlines how digital innovation can be carried out. Lupilya and Jung (2015), Lupilya and Hun (2015) and Mahmood, Weerakkody and Chen (2018) bemoan the lack of digital government policies in one hand, and lack of digital government policy implementation on the other, as the reasons behind unprecedented failures of many digital government programs and Transformational Government initiatives from less developed countries. Nonetheless, the aforementioned arguments influenced the choice of digital government policy implementation as a factor influencing the relationship between ambidextrous digital innovation and municipal information quality.

4.8 Conceptualising Municipal Information Quality

Regarding the provision of quality information, the performance of municipalities has received attention in countries such as Zimbabwe (Sigwejo and Pather, 2016) (Berlilana, Hariguna, and Nurfaizah, 2017; Mawela et al., 2017). This attention reflects the mounting expectations and demands by citizens of the role municipalities should play in the day-to-day provision of quality public services that enhance public value (Osei-Kojo, 2017). In view of this, the quality of public services refers to the provision of quality information that creates public value which is a central discussion in the current study. There is a growing body of literature that acknowledges the poor and low standards of digital government platforms, information quality in municipalities. Within these studies the assumption is that partly, this is attributable to lack of

digital innovativeness (Jonga, 2016; Acosta-vargas et al., 2017; Boukamel and Emery, 2017). It is further suggested that lack of digital innovativeness on the part of municipalities is among other contributing factors towards lack of interactivity between these organisations and their citizens. This situation gave impetus to the paradigm of Transformational Government which has recently gained momentum through several citations.

In view of the foregoing discussion, several scholars argue that the crux of Transformational Government paradigm lies in the public value realised through digital government-citizen interactivity (Lips, 2017; Alshetewi et al., 2018; Lindgren and Van Veenstra, 2018). Thus, Transformational Government sought to enhance citizen-centricity and improve digital government efficiency thereby promoting transparency, trust and accountability. Arguably, this status quo was necessitated by among other things government non responsiveness to the needs and demands of citizens.

However, inefficiencies associated to poor public service delivery generated spirited discussions, resulting in various narrowed down specific areas of concentration such as systems quality and information quality. Thus, several explanations of the concept of information quality were developed. For instance, in the broader context of public service quality which encompasses information quality, Osei-Kojo (2017) argues that there are four main dimensions namely: design quality, process quality, outcome quality and relationship quality. The scholar views design quality as referring to how well policies are developed and designed to the satisfaction of customers or citizens.

Nevertheless, more specifically Fath-allah et al. (2014), Fehrenbacher (2016) and Zaidi (2017) and view the concept of information quality as information that meets specifications or requirements from an information perspective and is thus suitable for use from information users' perspective. In consensus, Ziemba, Papaj and Descours (2014) and (Verkijika and De Wet, 2018) argue that information quality is the measure of value realised from the information user's perspective. Further, highlighted are several dimensions that are available for measuring information quality, and includes; accuracy, dependability, coverage, ease of use, availability and readability.

However, mixed outcomes have been observed pertaining to specific dimensions that are used to measure systems and information quality. For example, in studies conducted by Nguyen (2014), Ziemba et al. (2014), Alenezi et al. (2015), Fehrenbacher (2016) and Zaidi (2017) factors such as trustworthiness, utility, interactivity, trust and security and usability were used both in the measurement of systems and information quality. The choice of information quality dimensions was based on information quality dimensions (accuracy, timeliness,

relevance, completeness and consistency) stated by Delone and Mclean (2003) and Verkijika and De Wet (2018) on information usability in the context public sector from Sub-Saharan Africa countries. Information readability was not extensively tested quantitatively, whereas there were mixed results on information completeness hence for it to be tested in the current study (Marie, Antonette, Loren, & Ruel, 2015). Lastly, the researcher made a qualitative assessment at the most possible applicable information quality dimension to municipalities in the Zimbabwean context. To this end, the current study used the following information quality dimensions; information usability, information trustworthiness, information relevance, information completeness and information readability as factors that may promote Transformational Government towards realisation of public value.

Given the significance of information quality in enhancing government-citizen interactivity, Lips (2017), Kamaruddin and MdNoor (2017), Alshetewi et al. (2018) and Lindgren and Van Veenstra (2018) suggest that embarking on the direction towards achieving digital innovation would lead to improved quality of information. Not only that, but this action will lead to quality of information between the government and citizens as well as improve relationships, build trust and promote transparency. In view of this growing consensus, Transformational Government is created.

4.9 Municipal Information Quality

Information quality is defined as information that meets specifications or requirements from an information perspective and is thus suitable for use from an information users' perspective (Fath-allah et al., 2014; Acosta-vargas et al., 2017). In the same vein, Ziemba, Papaj and Descours (2014), Fehrenbacher (2016) and Zaidi (2017) define information quality as the measure of value which the information provides to a user. These scholars further suggest that the construct of information quality can be further illuminated through four reiterative factors namely; accuracy, dependability, coverage and ease of use (Fehrenbacher, 2016; Zaidi, 2017). As the Internet and digital technologies usage are increasingly taking a pivotal role in the public sector in an endeavour to meet citizens' and business needs, there has been growing calls on the sector's organisations to become citizen-centric and in so doing promote Transformational Government (Kamaruddin and MdNoor, 2017).

Growing into Transformational Government will enable municipalities to positively contribute towards public value. Thereupon, through Transformational Government, citizens get to share high quality information thereby leading to reliability and perceived trust of information provided through municipal digital technologies. (Li and Feeney, 2014; Alenezi, Tarhini, and

Masa'deh, 2015). Further, citizens' evaluation of information quality may possibly lead to public value (Fan and Yang, 2015).

High information quality is crucial towards the creation of public value, because it will subsequently influence municipalities to realise the impact of Transformational Government. Papadomichelaki and Mentzas (2012), Fath-allah, Cheikhi, Al-qutaish and Idri (2014), Kaliannan, Puteh and Dorasamy (2014), Alenezi, Tarhini and Masa'deh (2015) and Verkijika and De Wet (2018), proposed a number of important information quality dimensions influencing the creation of public value. These variables include among others; ease of use, content clarity, perceived trust, information availability, utility and readability.

Given an array of dimensions used to measure information quality, there is an observed overlap to dimensions that measure information quality and systems quality. For instance, studies by Ziemba et al. (2014), Alenezi et al. (2015) and Zaidi (2017) used factors such as usability, utility and trustworthiness to measure information quality, yet the same dimensions are also used to measure systems quality. This is against the backdrop of somewhat acknowledging the difference that exists between systems and information quality. Owing to the variation of indicators that explain information quality, this research set out to make use of factors adopted from Information System literature to inform information quality dimensions that can be specifically applicable to public sector organisations such as municipalities. See Figure 4.1 (page 81).

4.9.1 Proposed Municipal Information Quality Framework (MunINFORQUAL)

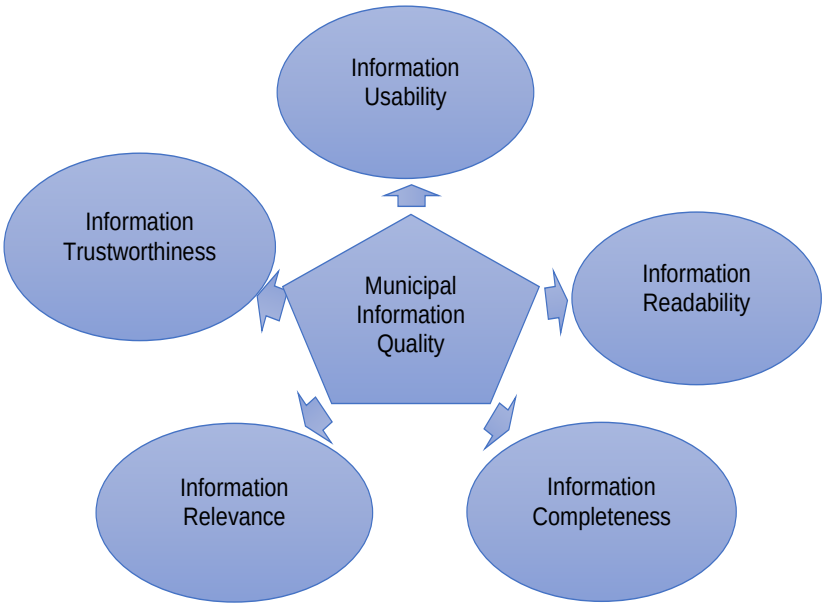

Figure 4.1: Proposed Information Quality Framework

Source: Adapted from Weerakkody et al. (2016); Zaidi (2017); Alshikhi & Abdullah (2018)

4.9.1.1 Information Usability

Information usability relates to how simplified the information is for citizens to understand, thus enabling them to interact through digital government platforms (Papadomichelaki and Mentzas, 2012). Citizens must find it easy to navigate through the web portal's structure. Further, through the platform, current and accurate information must be provided, clearly laid out. Moreover, there is need for simplified and clear links, simple Uniform Resource Locator (URL) for citizens to remember, customised search functions, help pages and user friendly information (Alenezi et al., 2015; Verkijika, 2017; Serrano-Cinca and Muñoz-Soro, 2018). In addition, personalised information would be ideal for citizens to easily understand and interact through web-based ICT platforms. Further, it must be easy to download, complete and upload forms electronically.

Malik et al. (2017) point to the need for governments to embrace digital innovation by designing simple and user friendly digital government platforms. Information accessed through these digital technologies should be easily understood and usable by all kinds of citizens. In respect to evaluating web portals for digital innovation, usability heuristic may be applied in

ensuring a simple and interactive digital government platform. In support of the aforementioned view, usability heuristic evaluation tools are predominantly used. Similarly, a study conducted by Acosta-vargas et al. (2017) observed the concept through the lens of information usability. Findings from the study highlighted an overwhelming increase of online information usage. This outcome indicates the significance of quality information from the digital platform which influences repeat usage. However, these scholars share similar views on the negative effects presented through poor information quality from platforms that lack on digital innovation (Acosta-vargas et al., 2017) Such negative effects include among others usability drawbacks by citizens which might cost governments' money and time. This may lead to less digital technology utilisation by citizens. To this end, they may be little realisation of the much anticipated public value.

Studies conducted by Verkijika (2017) and Miraz, Ali and Excell (2017) observe that most digital technologies from the Sub-Saharan Africa were found to have low levels of usability, and perhaps this state may be associated to lack of digital innovation on the part of governments. It is further highlighted that digital government platforms scored low in all usability heuristic evaluation dimensions namely; online services, navigation, user help, accessibility, legitimacy and information architecture terms of usability levels. From the previous study conducted in the context of Zimbabwe, Nhema (2016) also notes that part of the reasons for Transformational Government initiatives failures could be associated to lack of digital innovation as citizens found it difficult to interact with their governments. In contrast, as postulated in Zimbabwe National ICT Policy, the indications are that the country has made great and sound achivements towards the Internet and digital technologies usage. However, what remains baffling in the context of Zimbabwean municipalities is the low information consumption on the part of citizens who might be attaching little value if none at all on the information from municipalities.

4.9.1.2 Information Readability

Readability relates to the precision of information in terms of language that can be understood by citizens, this may as well include correctiness of the language, the style and information uniformity (Fath-allah et al., 2014; Fehrenbacher, 2016). Information accessed through municipal digital government platforms need to be presented preferably in the language that local citizens understand. This would mean embracing digital innovation through tailoring web portal content or information to incorporate local languages over and above the default language. (Fath-allah et al., 2014; Nhema, 2016; Verkijika and De Wet, 2018). Citing other cities that have embraced digital innovation in the Southern Africa region, Johannesburg and

Cape Town from South Africa are good examples of cities that are progressive, whose digital government platforms are interactive and citizen-centric (Verkijika & De Wet, 2018). Despite reported digital innovation progress on some of Southern Africa cities, they are still yet to offer language options through their digital government platform for easy readability. Over and above, information consistency and compatibility with various digital gadgets such as mobile devices also becomes important. Specifically, the way information is displayed should promote user friendliness thereby motivating citizens' to repeatedly use municipal digital platform. As an illustration, literature suggests that the way digital government platform information is presented should be characterised by eye-catching and appealing colours, graphics and animation (Papadomichelaki and Mentzas, 2012) However, not only web portal aesthetics are important but the information on its display must also be characterised by relevancy and correctness.

Notably, most if not all Zimbabwe municipal digital government platforms are presently written in English and as such they lack on digital innovation. Similarly, Miraz et al. (2017) note that digital government platforms which do not embrace the option of a local language in its content lack culture compatibility. With the advance in globalisation, it becomes essential for organisations such as municipalities to embrace digital innovation through the incorporation of indigenous languages to their digital platforms as that may promote usability. Despite Zimbabwe being an English-speaking country, the understanding of the language may vary with citizens hence the need for multilingual web portal content. Further, an interesting study conducted by Miraz et al. (2017) focused on the equal interactivity of international web portals content from English and non-English speaking citizens. The scholars in their study, explored multilingual web portal usability from an international user perspective (Miraz et al., 2017) However, the current study becomes unique in the sense that its scope is specifically narrowed to the context of an English speaking nation with the view that embracing multilingual web portal content may bring about interactivity between government and citizens thereby promoting Transformational Government.

4.9.1.3 Information Relevance

For the purpose of this study, information relevance is described as the extent to which information obtained through digital government platforms is complete to the satisfaction of citizen's expectations thereby promoting public value (Nguyen, 2014; Zaidi, 2017; Serrano-Cinca and Muñoz-Soro, 2018). Thus information relevance speaks to the information being informative, associated to value addition and fit for citizens' consumption. More so, the digital platform could include relevant, up to date and useful information about the organisation that

might be of benefit to citizens (Weerakkody, Irani, Lee, Hindi, & Osman, 2016). Further, relevance may relate to the perceived value accruing to citizens. That is the degree to which information relates to citizens' expectations (Zaidi, 2017; Alshikhi et al., 2018).

Literature suggests that information should not only be easily understood but citizens must also be able to attach some meaning to it, and as such it should be timely, consistent and relevant for specific usage (Fath-allah et al., 2014; Zaidi, 2017). Owing to information relevance, citizens' evaluation on perceived information quality may lead to public value (Fan and Yang, 2015). Resultantly, relevant municipal information quality can promote repeated usage. In addition to information relevance, Alenezi et al.(2015), Fan and Yang (2015) and Serrano-Cinca and Muñoz-Soro (2018) suggest that timeliness, availability and completeness of information are also considered key information quality dimensions resulting from digital innovation. In the same vein, it has been observed in the extant literature that governments do not regularly update their digital platforms, or worse still, the much needed information is unavailable hence rendering their information less useful and irrelevant from citizens' perspective (Fath-allah et al., 2014; DeLone and McLean, 2016; Serrano-Cinca and Muñoz-Soro, 2018).

4.9.1.4 Information Trustworthiness

Papadomichelaki and Mentzas (2012) and Verkijika and De Wet (2018) hold the view that trust encompasses privacy and security, and it explains citizens' level of confidence towards information obtained through digital government platforms. As suggested by scholars, citizens' perceived trust is based on protection of personal information, and that may include among others, securing and limiting access of personal information to authorised persons only (Serrano-Cinca and Muñoz-Soro, 2018). As such, digital innovation becomes the key driver in ensuring information trustworthiness. Information must be secured, and not accessible by unauthorised persons. This will protect citizens' information against risks associated with manipulation and fraud, that may lead to possible financial losses. However, failure to ensure information security and privacy may result in citizens' losing trust and in the long run lead to less usage of municipal digital technologies (Verkijika and De Wet, 2018). Moreover, Fath-allah, Cheikhi, Al-qutaish and Idri (2014) and Zaidi (2017) note that citizens perceive quality of information in terms of its trustworthiness, accuracy, reliability and comprehensiveness.

There is a growing body of literature that acknowledges the significance of trust in shaping citizens' anticipations towards future behaviour (Weerakkody et al., 2016; Zaidi, 2017). Thus, the absence of trust in government information may leave citizens with no choice but to revert back to their offline traditional ways of dealing with the government, which might perhaps be

costly for everyone. Consequently, trust is regarded as a key factor influencing information quality towards creation of public value. Increased trust on digital government platforms may lead to increased information consumption by the inhabitants hence bringing about the most sort after efficiency in these organisations (Fath-allah et al., 2014; Serrano-Cinca and Muñoz-Soro, 2018). To this end, it is suggested that citizens face uncertainty in using municipal digital platforms due to lack of digital innovation. Thus, citizens feel insecure to trust and use municipal digital information due to lack of reliability and security concerns (Weerakkody et al., 2016; Mahmood et al., 2018).

In view of these uncertainties, several scholars argue that trust has risks factors namely; privacy and security (Weerakkody et al., 2016; Lee, 2017; Serrano-Cinca and Muñoz-Soro, 2018). Security risk is associated with the Internet and digital platform usage, particularly when citizens feel unsafe about their financial information and passwords possibly being available to other unwanted and unauthorised parties (Acosta-vargas et al., 2017; Gil-Garcia et al., 2018). Whereas privacy risk arises when citizens become anxious about their personal information, it would be interesting to ascertain how ambidextrous digital innovation shapes information trustworthiness and secondly how information trustworthiness shapes public value in the context of Zimbabwe municipalities.

4.9.1.5 Information Completeness

Table 4.2 (page 85) presents a review of existing digital government information quality models with varied dimensions which are discussed in this section. For example, some past studies reveal that information completeness influences citizens' expectations about information quality, which suggest that citizens could hold different perceptions about information accessed through municipal digital platforms. For instance, Zaidi (2017) and Serrano-Cinca and Muñoz-Soro (2018) suggest that information completeness relates to sufficiency of information in enabling citizens complete the execution of their work. This possibly includes completeness of information on the digital platform that enables citizens to download and upload information on the same platform (Kurniawan, Rakhmawati, Abadi, Zuhri, & Sugiyanto, 2017). Moreover, citizens must be able to view and make online payments through the digital platform. To this effect, citizens also expect currency in information displayed on municipal digital platform. One branch of literature, suggests that information completeness relates to the presence of all necessary elements and absence of certain information (Marie, Antonette, Loren, and Ruel, 2015). Further, of interest is that the study disregarded the factor of information completeness since it was found to be an insignificant

predictor of travel intention. Yet it would be interesting for this study to ascertain if digital innovation can enhance information completeness towards public value creation.

This status quo suggests that information completeness is vital to quality and that quality information is central to Transformational Government (Verkijika and De Wet, 2018). Arguably, in the matter of the degree of information completeness, it is suggested that it will depend on the level of digital innovation embraced by the organisation. Further, incomplete information may be characterised by messages that are not informative enough, thus making it difficult for citizens to arrive at informed decisions (Kurniawan et al., 2017). Moreover, this may limit or hinder citizens to contribute to matters of development, policy formulation, lobbying and sending complaints about the status of events on the ground to relevant offices.

Table 4.2: Review of existing digital government information quality models

Author(s)	Proposed Model	Dimensions of digital services that influence citizens' or customer satisfaction.
Fehrenbacher (2016)	Information quality	Accuracy, completeness, security
Weerakkody, Irani, Lee, Hindi and Osman (2016)	Information quality	Timeliness, relevance, accuracy
Nguyen (2014)	Information quality	Ease of use, Contents, Trust and Security. Reliability, Communication, Responsiveness.
Zaidi (2017)	Information quality	Accuracy, relevance, consistency, trustworthiness, availability, timeliness.
Ziemba, Papaj and Descours (2014)	Information quality	Accuracy, Dependability, Coverage, Ease of use.
Alshikhi and Abdullah (2018)	Information quality	Accuracy, integrity, consistency, completeness, validity, timeliness, accessibility.
Alenezi, Tarhini and Masa'deh (2015)	Information quality	Accuracy, completeness, consistency, timeliness.

4.10 Public Value defined

Public value may be defined as the government created value through services offered, laws and regulations in place (Mawela, 2015; Verkijika & De Wet, 2018) Whereas, Meynhardt (2015) view the concept of public value as value for the public as a result of evaluations about how basic needs of individuals, groups and the society as a whole are influenced in its relationships involving the public. Public value is a mechanism that helps citizens understand

their societal environment and also helps organisations realise the potential of sustaining trust and legitimate action. In the same vein, Moore and Khagram (2004) equates public value to managerial achievements instrumental in shaping public sector service towards enhancing public value in both the short and long run.

4.11 Public Value

Marek (2016), states that the public value concept may be associated with Mark H. Moore's study which viewed public value from three perspectives namely; legitimacy and support, operational capabilities and public value engrained in a task environment, which public managers must consider. However, scholars such as Marek (2016) and Lindgren and Van Veenstra (2018) view the public value concept slightly differently from Moore's proposition. Particularly, Lindgren and Van Veenstra (2018) in consensus with Marek (2016) view public value as a means of making savings by improving the quality of public services and making government operations more efficient and effective through optimal utilisation of digital technologies. That is to say, digital technologies are regarded as vital in contributing towards the much sought after solutions to contemporary societal challenges.

Karkin, Yavuz, Cubuk and Golukcetin (2018) view public value as a function and action of digital technologies that result in the satisfaction of citizens. A study in United Kingdom by Coyle and Woolard (2010) indicates that public value is understood in three dimensions namely; the delivery of high quality services that create user-satisfaction, outcomes such as security and trust between citizens and service providers. Whereas Lindgren and Van Veenstra (2018) conceptualised public value based on three aspects specifically; the need to recognise multiplicity and continuously changing societal expectations, collaborations in networks and comprehensive responsiveness. Public value is assessed by Meynhardt (2015) as a measure that should focus on human perception and not pure facts.

Conversely, several studies have come up with different public value measurement frameworks. Marek (2016) suggests that given the diverse of frameworks used to measure public value, it becomes prudent for managers to select a more suitable framework for a specific organisation. In some sense, public value measurement is organisational specific. In this regard, state-of-the-art framework in the form of a "balanced scorecard" competing quadrant used by Talbot becomes ideal in assessing public value from a municipal perspective (Talbot, 2008; Marek, 2016). The framework is identiable with the work of Talbot (2008) which suggested an instrument on competing public values that can be used for measuring public sector performance. The instrument focuses on a combination of a set of measures such as; trust and legitimacy, control, compete, create and collaborate. What this implies is that, for

'control' it focuses on security, whereas for 'compete' the focus is directed on personal utility. For 'create' the focus relate to participatory democracy, for 'collaborate' focuses on knowledge and community (Marek, 2016).

Trust and legitimacy become the most significant factors in the sense that in their absence none of the other four factors will work efficiently (Talbot, 2008). More so, trust and legitimacy is viewed and articulated differently in each of the four quadrants. However, since this research proposed to focus mainly on digital innovation as a factor that promotes digital government platforms usage, it becomes more appropriate to adopt security, personal utility, participatory democracy and social benefits as variables to be used when measuring public value (Lindgren and Van Veenstra, 2018). Notably, the proposed modified model still informs Talbot's balanced score card of competing quadrant. However, since Talbot (2008) and Marek (2016) posit that public value means different things in each quadrant from the competing values framework, this motivated the use of a combination of personal utility, security, participatory democracy and social benefits for the current study.

4.11.1 Public Value Framework

Public value perspective is instrumental in assessing municipal Transformational Government initiatives. Mahmood et al. (2018) suggest that Transformational Government should be judged based on digital innovation and full utilisation of digital government platforms which increase public value and increased information and choice (Ferlie et al., 2019).

As such, Talbot (2008) and Marek (2016) emphasise the critical role played by the concept of trust and legitimacy within a public value framework. As presented in Figure 4.2, Trust and legitimacy is placed at the centre stage of the model because the concept is expressed differently in each of the four quadrants (Talbot, 2008). As a result, there is need to maintain a balanced approach towards public value with the concept of trust and legitimacy taking a centre stage.

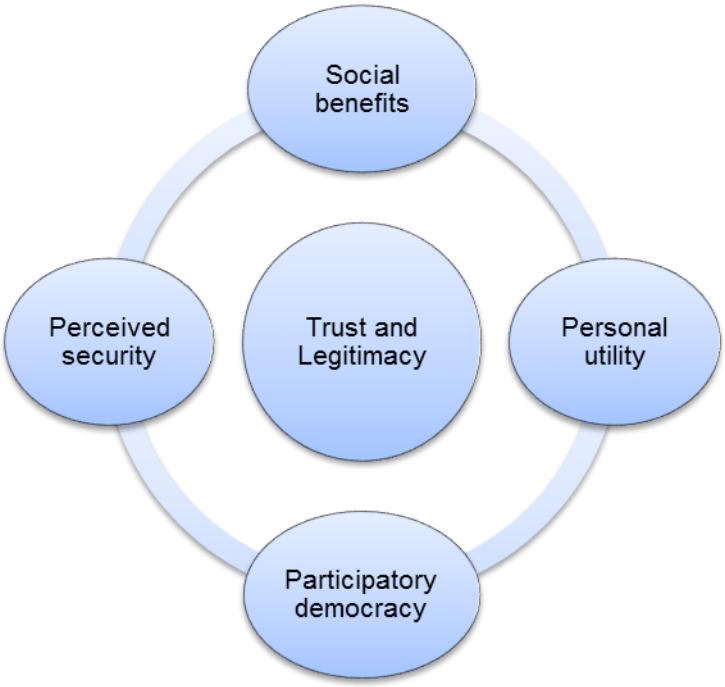

Figure 4.2: Public value framework

Source: Adapted from (Talbot, 2008; Marek, 2016)

4.11.1.1 Social Benefits

Marek (2016) observes that social benefits can be viewed through the lens of public and societal interests that citizens desire in general. The scholar further highlights that social benefits could be in the form of social outcomes such as a reduction in poverty, a well-educated and a well behaved community. These social benefits can be achieved through collective efforts, where all stakeholders become partakers in the development of communities. For example, by embracing digital innovation leveraged through digital technologies, municipalities can join forces with citizens through the exchange of ideas, engagement on matters of policy formulation and budget consultations hence promoting Transformational Government (Braccini et al., 2017).

Arguably, social benefit factor is anchored on the levels of trust citizens have on municipalities. The more citizens have trust on municipal information, the more they become involved in municipal activities thereby promoting interactivity. This undoubtably results in perceived benefits from the user's perspective. More so, it is supported by the application of IS Success theory and public value theory which argues for the usage of digital government platforms as a means of fostering an interaction between municipalities and citizens (Mahmood et al.,

2018). As such, it is this kind of interaction that promotes Transformational Government. Nonetheless, municipalities can enhance social benefits through digital dissemination of information that may help citizens start or manage their projects, inform citizens about events such meetings to take place within their areas of residence. To this end, efficient and effective exchange of digital information can perhaps be effectively achieved through the full utilisation of the digital platform. Moreover, given the ubiquitous of digital technologies, municipalities may take advantage of that to enhance information dissemination to citizens. For example, statistics presented through POTRAZ reports show that a significant amount of data usage collectively goes towards internet and WhatsApp platform. (Potraz, 2017; Potraz, 2018). In light of this statistic, it may be suggested that municipalities need to embrace digital innovation through integrating social media to digital government platforms.

4.11.1.2 Perceived Security

The concept of security in the context of municipalities revolves around trust levels citizens can have on these organisations. Every municipal is expected to safely keep records and manage information pertaining to the inhabitants within its jurisdiction. As such, citizens submit their personal details to municipalities for a wide variety of reasons, and they expect that these organisation safe guard their information (Talbot, 2008; Karkin et al., 2018). In essence, general expectations from citizens are that municipal managers should develop a sense of security, reliability and trust regarding the upkeep and usage of their personal information.

In view of the foregoing discussion, there is need for municipalities to secure citizens information during and after transacting. There is need to put in place a cyber-security system that ensures the protection of citizens data, non-repudiation of data, ensure data integrity and data availability (Nhema, 2016). With that in mind, citizens may perhaps begin to develop trust and use more of municipal web-based platform as a means of interacting with municipalities. Once trust is gained, citizens may find it safe to transact through municipal digital platforms, for example by logging onto their portals and processing payments.

4.11.1.3 Participatory Democracy

Participatory democracy relates to the autonomous desire for a group or personal expression of opinion and determination (Talbot, 2008). Talbot (2008) and Marek (2016) hold the view that digital technologies and the internet create shared spaces and forums where citizens can freely exchange information among themselves and interact with government at their most convenient times. This takes the form of participation and consultation on matters that speak to the development of policies. As such, this works towards restoring public confidence in

public services. The scholars further argue that given ever changing citizens' needs, autonomy can be the driver of much sought after organisational creativity and innovation that may lead to Transformational Government (Talbot, 2008; Marek, 2016).

Arguably, the promotion of group or personal participation freedom may enable municipalities to design citizen-centric services (Nielsen and Persson, 2019). This is because, such services would be a product of citizens' contribution realised through municipal-citizen interaction. As such, this may create an autonomous environment for citizens to freely present their needs and grievances to their municipalities thereby promoting trust along the way. More so, engaging citizens helps managers improve on their decision making, plan for the activities and set right their priorities. Municipalities are likely to benefit possibly through citizens participation in matters of policy formulation and dialogue, and by so doing promote public value (Braccini et al., 2017).

4.11.1.4 Personal Utility

Personal utility is defined in the work of Talbot (2008) as the commitment by the government to "meet rising expectations by matching the standards offered by the best of the private sector with flexible, personalised, tailored public services that treat people with care, respect personal preferences and appreciate the value of people's time". However, it is expected of municipalities to create innovative digital government platforms that promotes a two-way communication platform which enhances interactivity with citizens. Such a digital platform will enable municipalities address citizens' needs, perhaps through redesigning citizen tailor made services. For example, citizens should find it useful to use the digital government platforms. Further, municipals can create portals for every citizen who owns a property within its jurisdiction as this may create an enabling environment for citizens to transact easily and at their most convenient times.

More so, digital innovation through developing an integrated social media platforms to the web portals may perhaps increase contribution to matters of personal interest to individuals. This is because the platforms are widely used by many. However, such personal interest may include information on weather report, which could be of benefit to farmers or information on areas of investment. Further in relation to personal utility, it is suggested that information presented in local language of the citizens may be found more useful to the users and as such Transformational Government may be created through digital innovation.

4.12 Proposed Conceptual Framework

Figure 4.3 (page 91) presents the proposed moderated mediated conceptual framework which focus on the influence of Organisational Ambidexterity on Transformational Government. These two concepts are further discussed in relation to identified theories of dynamic capabilities, IS Success and public value. By examining the literature on dynamic capabilities, IS Success and public value theories, the current study focused on the influence of Digital Government Ambidexterity on Transformational Government in a bid to create public value. The seemingly contradictory concepts of exploitative and explorative are used to explain Digital Government Ambidexterity. These two concepts are viewed in relation to digital innovation leveraged through digital technologies. In addressing the concept of information quality, the following factors that measure the concept were identified; information usability, information readability, information relevance, information trustworthiness and information completeness. Further, the concept of public value was viewed through personal utility, perceived security, participatory democracy and social benefits.

In reviewing the literature on Organisational Ambidexterity, information quality and public value, this study proposes to focus its investigation on the influence of Digital Government Ambidexterity on information quality for public value. In developing the conceptual framework, the focus was largely placed on digital innovation leveraged through digital technologies towards achieving Transformational Government in the context of Zimbabwean municipalities (Ayantunji, 2016; Osei-Kojo, 2017). The study further examined the moderation role of digital government policy implementation between the relationship of Digital Government Ambidexterity and municipal information quality. Digital government policy implementation is considered influencial in promoting and enhancing digital innovation particularly in the context of municipalities from the developing countries.

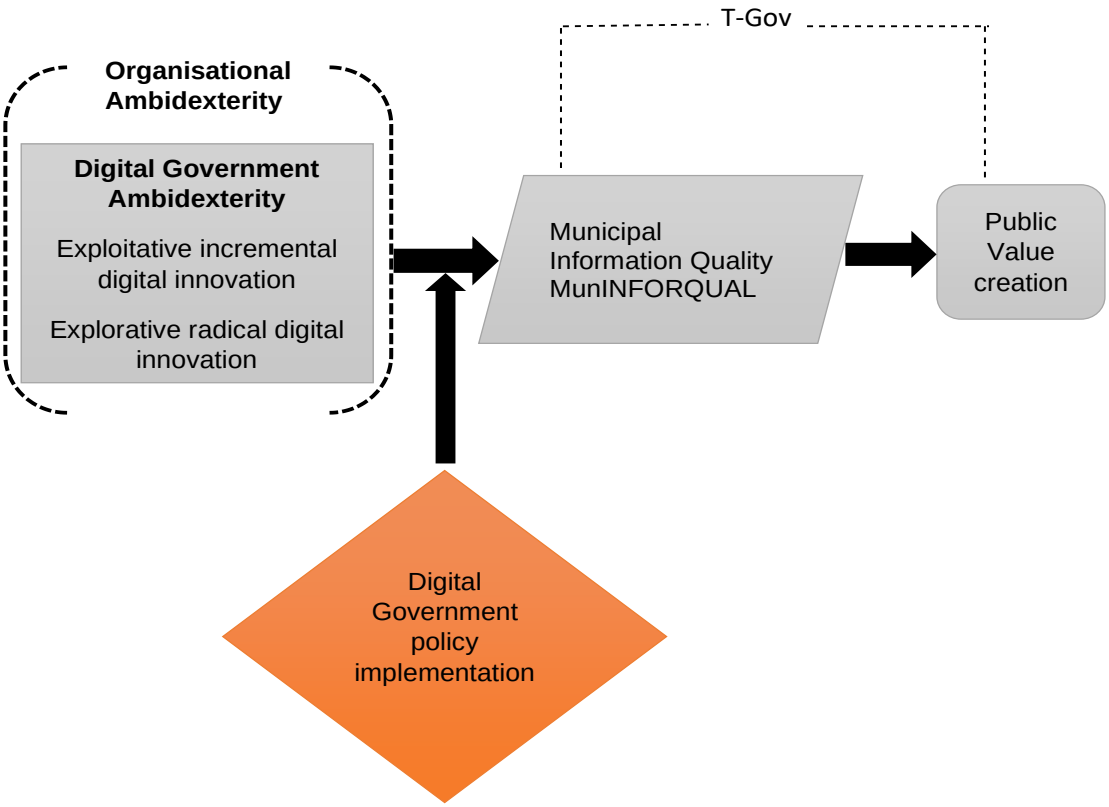

Figure 4.3: Proposed moderated mediated conceptual framework.

Source: Adapted and modified from Marek (2016), Zaidi (2017) and (Alshikhi et al., 2018).

4.13 Chapter Summary

The chapter provided theoretical underpinnings linking the concepts of Digital Government Ambidexterity and transformational to theories of dynamic capabilities, IS Success and Public value. That was followed by the proposed study conceptual framework, and the justification of digital government policy implementation. Operationalisation of ambidexterous digital innovation and conceptualisation of municipal information quality were also presented in the chapter. A detailed review of municipal information quality was presented to understand how it influences public value and how digital innovation can affect it in the context of Zimbabwean municipalities. The following municipal information quality dimensions namely; information usability, information readability, information completeness, information relevance and information trustworthiness were used. Lastly this study has indulged in a detailed discussion of public value guided by the modified model by Talbot (2008) and Marek (2016).

CHAPTER FIVE

RESEARCH METHODOLOGY

5.1 Introduction

The previous chapters reviewed the literature on Organisational Ambidexterity, Transformational Government and municipal information quality model. This chapter will address the research methodology that was adopted for this study. Thus, the section commences with a discussion of the philosophical perspectives, followed by a presentation of the research strategy, the research design adopted, followed by participant selection criteria that was used to select participants. This is followed by the section on data collection, survey instruments and data analysis. Further, the study has included sections on research validity and reliability followed by ethical considerations. Morgan (2007), Saunders, Lewis, and Thornhill (2009) and Antwi and Hamza (2015) define research methodology as the application of a combination of methods of investigation required to arrive at an appropriate and authentic result to the selected epistemology. In view of that, this research sought to adopt an appropriate methodological position focusing towards addressing the research questions relating to the influence of Organisational Ambidexterity on Transformational Government in Zimbabwe. Towards a Municipal information quality model.

Three constructs of Digital Government Ambidexterity, Information Quality and Public Value emerged from the two key concepts. The following primary research questions were also addressed; how does exploitative incremental digital innovation influence municipal information quality?, how does explorative radical digital innovation influence municipal information quality?, how does municipal information quality influence the relationship between Digital Government Ambidexterity and public value?, how does exploitative incremental digital innovation influence public value?, how does explorative radical digital innovation influence public value?, lastly, how does digital government policy implementation influence the relationship between Digital Government Ambidexterity and municipal information quality?.

5.2 Overview of Research Paradigms

Mawela et al. (2017) posit that a paradigm represents a way of thinking or a worldview used in support of a research study. Similarly, a paradigm relates to a set of theories and assumptions shared amongst researchers (Morgan, 2007; Saunders, Lewis, and Thornhill, 2016). Accordingly, these set of methodological theories and assumptions become the basis

for shaping the researcher's choice of research strategy, research design and research methods. These become useful tools for interrogating the phenomenon under study. Antwi et al. (2015), Saunders and Bezzina (2015) and Saunders et al. (2016) hold the view that the research philosophy focuses on the nature of created knowledge in terms of its credibility and reliability. In order to untangle this knowledge, the research philosophy provides the methodological radar which addresses and justifies the selection of methods used in the current study. For instance, this includes among others, how the assembled data is analysed and interpreted in an endeavour to address research questions.

Blumberg, Cooper and Schindler (2011), state that the three most distinguished and invaluable epistemological research philosophies are positivism, critical realism, interpretivism and pragmatism. Orlikowski and Baroudi, 1991) opine that positivism, critical realism, pragmatism and interpretivism paradigms are predominantly used in Information Systems research. Saunders et al. (2009) hold the view that, there lacks a consensus in as far as description and classification for research paradigms is concerned. for example, epistemological perspective may include positivism and interpretivism, whereas the ontological perspective may involve critical realism, interpretivism, pragmatism and positivism. Despite lack of consensus regarding the use of paradigms, different research paradigms have been used in Information System research. The predominantly used epistemology paradigm in IS research according to (Orlikowski and Baroudi, 1991) is positivism, critical realism and interpretivism paradigms.

Since this approach proposes that there is valid knowledge and is preoccupied with establishing logical relationship between concepts of Organisational Ambidexterity and Transformational Government, epistemological positivism becomes ideal for this research study. However, the motivation behind adopting a positivist approach is to predict the relationship between the following latent variables; Digital Government Ambidexterity, municipal information quality and public value within municipalities, a positivist epistemology best fits this assessment.

5.2.1 Positivism

Antwi et al. (2015) state that positivism observes social science as a logical method which is deductive in nature, one that focuses on individual actions in order to establish and confirm a set of probabilistic fundamental laws used in the prediction of human behaviour. Similarly, Bhattacherjee, Morphet, Gutiérrez Bayo, Nam, and Pardo (2017) suggest that positivism relates to human conduct driven by the environmental influences as opposed to conscious individual reasoning. Several scholars further maintain that positivism is based on the view that reality is independent of the observer, and as such it can be examined objectively

independent of the researcher (Saunders et al., 2016; Bhattacherjee et al., 2017; Verkijika, 2017). In view of the aforementioned statement, the objectivity of the research may not be maintained without researcher and participant interaction.despite the researcher keeping a distant, neutral and non-interactive position. This position may not present authentic research results, because of the external observer role played by the researcher.

5.2.2 Critical realism

Also known as critical realism or Neopost-positivism is concerned with multiple perceptions about reality. It emphasises on ones' knowledge of reality as influenced by social; conditioning and cannot be understood independently of social actors involved. In realism philosophy both qualitative and quantitative methodologies are applied and resonate well with methods such as case studies, usage of structured equation modelling, unstructured or semi-structured interviews.

The critical research paradigm looks at ideological distortions characterised by power, conflicts and contradictions in groups that are dominated and frustrated by existing social settings and move on with analysis with the intention to inform the deliverance of these groups. This approach advances not only the analysis of social settings in view of understanding the world, but also to change the status quo. According to Orlikowski & Baroudi (1991) critical realism advance the notion of change for a better society through resourcing themselves and those around them, taking an interest in investigating injustice. In view of the aforementioned statement, the subejective nature of critical realism's epistemological positivism render it not suitable for the current study.

5.2.3 Interpretivism

Inversely to positivists, interpretivists hold the view that reality is subjective, socially constructed and hinges on personal experiences (Scotland, 2012). In view of the aforementioned statement, the interpretive researcher assumes that knowledge may not be built outside human cognition as the reality sought may be realised through social constructions such as language, shared meanings and consciousness (Mawela, 2015; Bhattacherjee et al., 2017). Further, Antwi et al. (2015) posit that Interpretivism is particularly concerned with viewing the world from subjective individual experiences. The rudiments for an interpretivism approach revolves around individual or personal perspectives in explaining and understanding a phenomenon. Interpretivism focuses on interrogation of text in order to assign meanings to matters of social practice in an endeavour to understand human actions and behaviours (Bryman, Bell, Mills, and Yue, 2011). Through interpretivism, knowledge is

constructed by way of understanding reality from multiple and individual perspectives. This approach focuses at explaining the subjective thinking behind social action (Antwi et al., 2015;Mawela, 2015).

Tekin and Kotaman (2013) also hold the view that interpretivists do not wholly believe in standardised research methodology rather, a provision to deploy less structured techniques is made. These structured techniques include among others ethnographic methods, phenomenology and hermeneutics. In addition, the interpretivism approach is widely acknowledged in the extant literature as subjective, mostly and as somewhat appropriate for exploratory research because it fairly embraces contradictory multiple and individual perspectives with regard to knowledge construction, while a positivist approach underscores the need for objective decision making. (Bryman et al., 2011; Antwi et al., 2015; Verkijika, 2017; Bhattacherjee et al., 2017). This understanding implies that interpretivism emphasises the need for close interaction between researchers and their subjects. Further, this is indicative of a qualitative research that enables a researcher to explore, interpret and understand multiple and individual perspectives of social realities.

5.2.4 Pragmatism

Pragmatism is a research philosophy grounded on epistemology with regards to the notion that there is no sinlge path of understanding matters, instead there are multiple realities which underscores research (Saunders et al., 2016). Knowledge of multiple realities can be realised through the integration of different research approaches of qualitative and quantitative methods. This approach enhances better understanding of the problem under study from different viewpoints of people who lived the experiences (Creswell, 2007). Pragmatism is further regarded the best method in answering research questions such as the how, what and why. This integrated approach enhances a detailed comprehension of research questions and outcomes leading to a more balanced conclusion with regards to the research problem.

In view of the aforemention statements, the pragmatic approach was adopted in the this study. These four contrasting paradigms the positivist, critical realism, interpretivist and pragmatism are compared in Table 5.1. The Table 5.1 presents some predominantly used research paradigm in Information System and their philosophical perspectives, and the mixed methods approach adopted.

Table 5.1: Comparison of research paradigms in business research

	Positivism	Critical realism	Interpretivism	Pragmatism
Ontological principles (nature of reality or being)	Observe the nature of the world as measurable. Uses modeling, constructs, variables and instruments to capture nature of reality. It regard people's actions as intentional and rational. Single external reality.	Realities are social constructed faculties that are under persistent internal influence.	Reality is constructed through social actors who are also responsible for its maintenance. Observe the significance of subjective meanings. The emphasis is on how and why people give the world certain meanings. Multiple realities.	Singular and multiple realities are constantly interpreted in view of varied situations.
Epistemological principles (what constitute acceptable knowledge)	Empirical testability of theories. Research objective is to explain, predict and control. Data is collected through sample surveys and controlled experiments. Utilises highly structured instruments in data collection. Utilises statistical analysis to analyse data, make inferences and produce causal laws. Generation of objective knowledge that can be generalised.	It emphasises that reality and are both socially constructed and influenced by power. Therefore, knowledge and reality can not be comprehended independently of social actors.	The researcher gains knowledge about social processes through involvement. Gaining knowledge about how practices and meanings are formed informed by language and norms enhances the understanding of social reality. Focuses on subjective knowledge that is basically context specific.	The thrust is on the practical application to solving problems by integrating views to aid in the data interpretation
Typical methods	It is deductive. It is highly structured. Utilises large samples. Predominantly utilises quantitative methods to collect and analyse data. A collection of data can be analysed.	Adopted methods depends on the matters surrounding the research. Both qualitative and quantitative approaches are applicable.	It is inductive. Utilises small samples. Advocate for an in-depth investigations. Utilises qualitative methods to analyse data. A collection of data can be interpreted.	It is both deductive and inductive. Advocates for the application of a combination of quantitative and qualitative methods (mixed methods approach)

Source: Adapted from Orlikowski and Baroudi (1991)

The current research adopts a positivist stance. This is because a positivist-oriented research focuses on examining relations of association between concepts and constructs, and it enables the researcher to generalise research findings. Accordingly, this approach is

consistent with the research's intention to examine the relationship between ambidextrous digital innovation and Transformational Government. Hence this relationship can be examined quantitatively making use of quantitative data collection and quantitative analysis procedures.

5.2.5 Justification of the Pragmatism paradigm

For the purpose of this research study, pragmatism paradigm is preferable because it enables the researcher to employ both quantitative and qualitative approaches to understanding the objective and subjective realities of the world (Creswell, 2007). It is also predominantly used in Information Systems studies Orlikowski & Baroudi, 1991). Reliance would be placed on theories that can be directly tested or hypotheses that must be validated or invalidated, whilst at the same time identifying a multifaceted, holistic picture characterised with comprehensive reporting ideas of respondents (Saunders, Lewis, and Thornhill, 2009; Cohen, Manion, and Morrison, 2011; Bhattacherjee, Morphet, Gutiérrez Bayo, Nam, and Pardo, 2017). However, the pragmatism approach is regarded appropriate because the current study is driven by the notion of establishing logical relationship between concepts or variables, and understanding diverse views of informants with regrads to the influence of digital government ambidexterity moderated by digital government policy implementation on transformational government in the context of municipalities from developing countries such as Zimbabwe.

Interpretivism originated on the notion that social reality as is conceived by multiple people may also interpret events differently, leaving multiple perspectives of an incident. As such, interpretivism as suggested by scholars such as Mack (2010) underscores the ability of individuals to construct meaning. The other reason why interpretivism was not suitable for this study is that as a research approach it recognises the existence of a subjective world and is more suitable for theory building studies usually in grounded theory (Shambare, 2012). Whereas, positivism paradigm considers the elements of the world as rather simple to explain and can be reduced to objective facts. In the same vein, Bhattacherjee et al. (2017) state that positivism strictly focuses on scientific knowledge creation which should be limited to what can be observed and measured. In view of that, the positivism alone was regarded inadequate hence the need for pragmatism approach which enables integrations the quantitative and qualitative methods.

Thus having found a research home within the pragmatism epistemology, the objective is not only to understand and document what Digital Government Ambidexterity and Transformational Government is, but also to establish structures, relationships and how variables influence each other, and diverse views of informants regarding the significance of

digital government policy implementation in municipalities. Further, this is to establish how the relations contribute towards addressing the challenges experienced by municipalities in trying to embrace ambidextrous digital innovation. In essence, the study focused on digital innovation as a possible driver towards promoting government-citizen interactivity in the Zimbabwean context. This is against the background of significant strides made by the country towards becoming a technological driven nation, for instance, having over 12.9 million and 8.7 million citizens being active mobile users and Internet services users respectively (Potraz, 2019). However, this is contrary to the current thinking from the United Nations perspective that Zimbabwe is experiencing a downward trend in EGDI rankings (United Nations, 2018). As such, the research sought to establish how Digital Government Ambidexterity contributes towards addressing Transformational Government challenges. Thus, the pragmatism paradigm was deemed appropriate for this research.

5.3 Research Strategy

Creswell (2007) refers to a research strategy as an approach that a researcher employs to solve a research problem identified for a specific study. Creswell (2007) further argues that, such strategies represent certain philosophical assumptions as well as universal preferences regarding sampling, data collection, data analysis, guidelines for making inferences and criteria for assessing the quality and rigour of the research effort. Nevertheless, there are three different research approaches namely the quantitative, qualitative and mixed methods. Qualitative approach is concerned with producing descriptive data without numericals assigned to the subjects or observations, quantitative approach predominantly focuses on data collection, frequency calculations and statistical analysis, whereas the mixed methods approach advocate for the integration quantitative and qualititative data within a single study (Saunders & Bezzina, 2015). Antwi et al. (2015) state that the mixed methods research approach utilises not only statistical tools in the collection, analysis and interpretation of data, but also includes interviewing individuals or groups, such as focus groups. This enabled the researcher to use surveys and focus group interviews to better understand the phenomenon under study.

5.4 Research Design

Antwi and Hamza (2015), observe that a survey design underscores the use of a series of questions or statements presented to characterise an individual or group. Survey design has been found to possess some inherent strength compared to other research methods as it is ideal for collecting data about a population too large to observe directly (Bhattacherjee et al., 2017). It is further opined that it is unobtrusive in nature and enables respondents to respond

anytime convenient to them. The survey approach does have its own share of limitations, for example Bhattacherjee et al. (2017) suggest that it is subject to large number of biases such as non-response bias and sampling bias.

As presented in Figure 5.1, this research proposes to employ a cross sectional survey design embedded within the conclusive research approach, which is descriptive in nature as a means to find answers to the research questions. The survey design is embraced in order to ascertain the extent of municipal digital innovations towards public value among municipalities from the Zimbabwean context. The use of a survey design become appropriate to the current research given the researcher's intention to generalise results to a population from which the sample data was obtained (Shukla, 2008). This is because the survey approach guarantees the inclusion of diverse characteristics of the population. Moreover, participants will be approached in public places such as revenue halls, malls, parks and organisations of higher learning.

The survey design is regarded as suitable to the current research, as this study requires a sample of citizens from the three selected municipalities large enough to make generalisations about the extent of citizens' perceptions about their municipal's digital innovation project. To this end, the research approach complement each other in the sense that, analysing data that is quantitative in nature such as testing of different hypothesis and examining associations between variables will require the employment of a conclusive approach (Fouché and Delport, 2011). Since this research will also be concerned with determining how Digital Government Ambidexterity influences Transformational Government, and the determination of relationships among constructs and concepts, descriptive research becomes appropriate (Lacobucci and Churchill, 2009; Leedy and Ormrod, 2010; Pahore, Hamid and Ismail, 2017).

Exploratory research design was also adopted because the current study used a mixed methods approach to understand the phenomenon under study. This enabled the researcher to understand more the problem associated to lack of digital government policy implementation in municipalities (Shukla, 2008). Exploratoty research design's emphasis is on the usage of unstructured means or informal procedures to collect and interpret data. Some examples of exploratory research design include in-depth interviews and focus groups. This aided in understanding the significance of digital government policy implementation in municipalities.

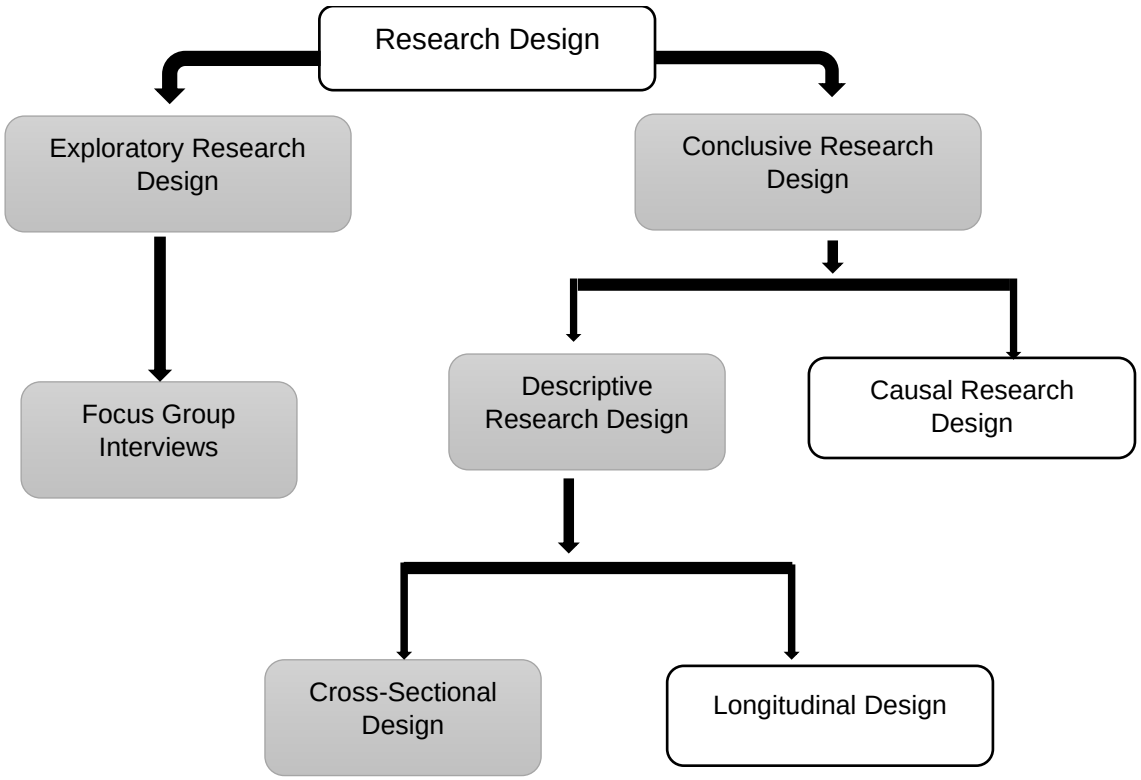

Figure 5.1: Research designs classification
Source: Adapted from (Shukla, 2008)

5.5 Sampling

This research made use of the multi-stage cluster random sampling technique to select municipalities that will participate in the study (Bryman et al., 2011). This is whereby the population units are grouped into clusters. The multi-stage cluster sampling is a better sampling tool where one is dealing with a widely dispersed population (Sedgwick, 2015). For instance, considering that Zimbabwe municipalities are spread across 10 provinces, trying to focus on all proved to be a mammoth task due to time and budget constraints. As a result, employing a multi-stage cluster random sampling technique became more appropriate to employ. Clusters will constitute of Metropolitan, City councils and Municipalities.

5.5.1 Participant Selection

The population in this research was made up of local citizens of the municipalities under study. Due to the fact that the main focus of this research is Digital Government Ambidexterity and Transformational Government ultimately resulting in public value, all citizens of the selected municipalities potentially constitute the sampling frame. Given the challenges associated with drawing any of the probabilistic sample, the snowball approach was used to collect data from citizens (Shambare, 2011). Such an approach maximises sample representations whilst

minimising sampling bias. As a means of targeting as many citizens as possible the researcher engaged the services of three research assistants to distribute and collect questionnaires from citizens as well as visit revenue halls, malls, universities and parks from the three selected municipalities as presented in Table 5.2 (page 100). All adults' individuals residing in three selected municipalities constituted the population of the study as shown in Table 5.2. The choice for selecting these three municipalities was informed by the fact that urban municipalities are deemed to be at the leading edge of implementing ICT projects in the public sector and their proximity to Internet connectivity (Ayantunji, 2016).

Table 5.2: Population definition

Population criterion	Explanation
Element	The elements from which the information is solicited from. These are adult persons (i.e 18 years or older) residing in three selected municipalities.
Sampling unit	The sampling units for this study are three municipalities namely, City of Bulawayo (metropolitan), City of Gweru (city council) and Victoria Falls municipal (municipality).

5.5.1.1 Multistage Cluster Process

Multistage sampling relates to two or more stages of random sampling based on hierarchical structures of natural clusters within a given population, while clusters are groupings of respondents (Sedgwick, 2015). The researcher placed municipalities according to their categories/status that is; (1) Metropolitan status (2) City Council status and (3) Municipality status (Urban Councils Act Chapter 29:15). Zimbabwe has 2 Metropolitan, 5 City councils and 10 Municipalities as shown in Table 5.3 (page 101) Therefore, each category was placed in a cluster and from each cluster municipalities were randomly selected. Three municipalities were randomly selected from each cluster by means of a Random Number Generator software (Sedgwick, 2015), and finally a sample was drawn from each of the three clusters as presented in Figure 5.2 (page 101). The researcher listed municipalities according to their population sizes and assigned numbers, for example, number 1 to a municipal with the highest population figure and this applied to all clusters. Thereafter, municipalities were placed according to their current clusters and then generated numbers from 1 to the total number in each cluster and then selected the municipal to which the number corresponds.

Metropolitan City Council Municipal

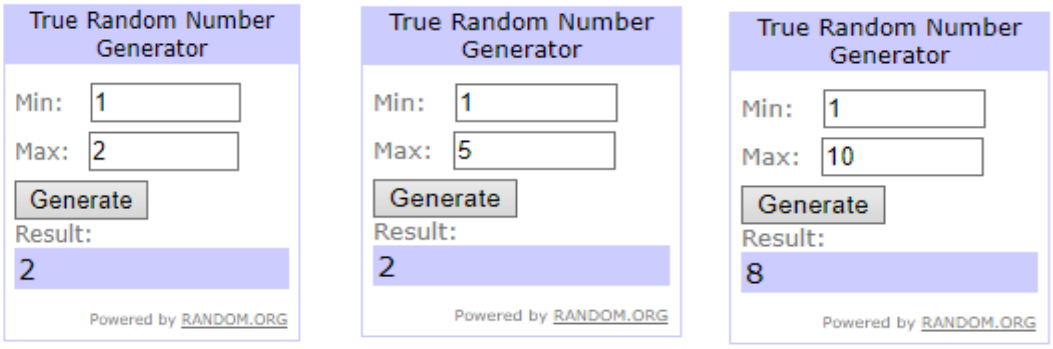

Figure 5.2: Generated random numbers

Table 5.3: Categories selected Municipalities in Zimbabwe

Metropolitan	Population size	City Council	Population Size	Municipalities	Population Size
Harare	1663423	Mutare	195373	Chitungwiza	371256
Bulawayo	**679732**	**Gweru**	**164243**	Chinhoyi	81077
		Kwekwe	104976	Marondera	64503
		Kadoma	96205	Chegutu	52634
		Masvingo	91437	Bindura	45439
				Beitbridge	43839
				Redcliff	37381
				Victoria Falls	**34597**
				Kariba	27520
				Gwanda	21044

Source: (Zimbabwe National Statistics Agency, 2012)

The metropolitan cluster was made up of respondents from the City of Bulawayo, while City council cluster constituted of respondents from Gweru. Lastly municipality cluster constituted of respondents from Victoria Falls municipality.

5.5.1.2 Sample Size Determination

Owing to limitations associated with time and costs among other constraints when collecting data from a large sample, it became important for the researcher to extract a representative sample from a target population. However, in determining the sample size the researcher used

a minimum sample size to conduct meaningful analysis and statistical methods. Using the rule of thumb, Sekaran (2013) recommends that a sample size of between 30 and 500 could be adequate depending on the type of research being carried out. For instance, whereas, an average size for a sample is considered to be between 600 to 800 respondents, Shambare (2011) used a sample of 1820 respondents in a similar study involving consumers or citizens. In the same vein, scholars such as Pallant (2010) and Pahore, Hamid and Ismail (2017) recommend that to conduct meaningful analysis, minimum sample size of between 200 and 300 respondents or more tend to produce better results.

In determining a sample size from a large population, researchers often recommend a ratio of the number of items in the questionnaire to respondents and indicated a range from 5:1 to 10:1 (Field, 2009; Ayantunji, 2016).This means that at a maximum, for every question (or item) there should be at least 10 respondents or at minimum there should be at least 5 respondents (Pallant, 2010; Ayantunji, 2016). Notwithstanding diverse views on what constitutes a minimum acceptable sample, guided by the rule of thumb, an average range of 5:1 criterion was used given the large population targeted. The criterion was within the acceptable parameters recommended by Field (2009) and Ayantunji (2016).

The questionnaire (see Appendix E) contained 46 items for factor analysis, and that translated to a minimum sample size of (46 x 5) 230 respondents from each cluster. That brought the minimum total sample to 690 respondents, above the average recommended sample size. Having considered the aforementioned criteria, it was therefore considered that the minimum sample size for this study be set at 690, and the number surpassed all the requirements previously stated. In total, 690 respondents participated in the study. These respondents came from the following three municipalities namely, Bulawayo, Gweru and Victoria Falls.

5.6 Data Collection and Survey Instrument

Table 5.4 present the structure of data collection instrument used for the current study. Data was be collected from respondents using self-administered questionnaires. A brief description simplifying some key terms was also be provided to the respondents. The researcher engaged three research assistants stationed in respective municipalities for collecting the data and also to help administer questionnaires to the citizens within the identified municipalities.

5.6.1 Questionnaires

Questionnaires are refered to as a scientifically prepared document with set of questions intended to capture participants' responses (Saunders et al., 2016). Questionnaires can be structured or close ended, where respondents' responses are limited to what is provided in the instrument. Whereas unstructured or open ended questionnaires is where respondants are given the latitude to freely express their opinions. The current study made use of structured or close ended questionnaires such that data could be easily obtained. Ordinarily, this method requires less time from respondents. Further, structured questionnaires enables the collection of data from large samples, and assessing for reliability become simple.

5.6.2 Focus Group Interview

Focus group interview is a data collection tool based on qualitative approach. It is commonly used as a complement to a quantitative study to answer questions such why and how (Khan, Anker, Patel, Barge, Sadhwani and Kohle, 1991). Focus group interviews are ideal where individual perceptions concerning a particular phenomenon are required. To this end, the current study employed focus group interviews to answer research objective six which could not be statistically tested, ***to establish the moderation influence of digital government policy implementation on the relationship between digital government ambidexterity and municipal information quality.***

Table 5.4: Data collection instrument format

Section	Section summary	Scale development	Rationale
A	Respondents' demographic characteristics.	Developed for the study	To describe demographic characteristics of the respondents.
B	Perceived citizens' Internet familiarity and usage habits.	• Verkijika and De Wet (2018) • Developed for the study	To describe the respondent's usage pattern of the Internet.
C	Influence of Digital Government Ambidexterity on Transformational Government .	• Papadomichelaki and Mentzas (2012) • Talbot, (2008) • Developed for the study	To establish the influence of ambidextrous digital innovation on municipal information quality leading to public value.

5.6.3 Section A: Demographic Data

Demographic information presents data about research participants and is significant in establishing whether individuals are a representative sample of the target population under study. This section enabled participants to provide background information important for the research such as indicating their municipal, Internet familiarity and usage, highest level of study and age.

5.6.4 Section B: Perceived Citizens' Internet Familiarity and Usage Habits

This section was for soliciting information from the research respondents on the status of Internet usage within their respective municipalities. That included the primary usage of Internet, how often they used the Internet and where they accessed it from.

5.6.5 Section C: Influence of Digital Government Ambidexterity on T-Government

This section solicited for information from respondents about their understanding of what ambidextrous municipal digital innovation on web portal is all about and how it works. The main focus being on digital innovation that enhances the web portal interactivity. The respondents were also asked about the influence of municipal information quality towards enhancing public value.

5.7 Data Analysis

The demographic characteristics for this study was measured in terms of gender, age, education, occupation and experience. A five-point Likert scaled questionnaire with end points of strongly agree and strongly disagree was used. After the data was coded, the following statistical procedures were applied, descriptive statistics to describe population characteristics (Field, 2009; Zikmund, Babin, Carr, and Griffin, 2013) and inferential statistics which enabled the researcher to make inferences to arrive at conclusions about the population.

The researcher used SMART-PLS software for statistical analysis. Multiple regression analysis was used to allow the researcher to examine how Digital Government Ambidexterity influenced municipal information quality leading to public value. Exploratory Factor Analysis (EFA) and correlations were carried out in order to establish specifications of the construct and item relationship (Fan and Yang, 2015). SMART-PLS was also used to ascertain the direct and indirect effects between Digital Government Ambidexterity, municipal information quality and public value constructs. These statistical techniques are discussed in detail below.

5.7.1 Ensuring Research Credibility

Ensuring the validity and reliability of the research instruments is instrumental in guaranteeing credibility and trustworthiness of data collected. Bhattacherjee et al. (2017) suggest that to realise data validity and reliability, the researcher needs to make use of acceptable and reliable data measuring instruments. Further, research credibility can be realised through conducting instrument validity. Instrument validity relates to the degree to which a research instrument serves the purpose for which it was designed (Blumberg, Cooper and Schindler, 2011; Leedy and Ormrod, 2010). Bryman et al. (2011) and Bhattacherjee et al. (2017) posit that there are two broad measures of validity namely the internal and external. Internal validity focuses on the reasons for the research outcomes, whereas external validity focuses on enabling researchers to generalise research results. For this reason, literature was used to develop the instrument, and by so doing promoting instrument internal validity. In ensuring research credibility, content discriminant and convergent validity were conducted. In order to ensure that factors used in the study were appropriate in terms of the content of an instrument. The instrument should accurately and adequately measure what the researcher intend to know (Leedy and Ormrod, 2010; Fan and Yang, 2015). In the same vein, Bhattacherjee et al. (2017) hold the view that content validity focuses on the instrument if it adequately covers all the content that it should. In developing the research questions, a thorough interrogation of literature was conducted to ensure content validity. Further, to ensure content validity, research instruments were sent to twenty participants familiar with Information and Communication Technologies for assessment. They were representative samples of content validity of the instrument. Notably, the researcher received feedback from all the twenty participants, and those did not take part in the research. The questionnaire distributed to participants provided information relating to its purpose, aim of the study and the estimated amount of time required to complete the instrument. Definition of key terms were also included.

In view of the new survey instrument, evaluating for internal consistency was deemed necessary. Hence the need to confirm the internal consistency and goodness of fit of the measurement model through Cronbach's alpha, composite reliability, average variance extraction (AVE), adequate factor loadings for construct validity, lastly standardized root mean square residual (SRMR). The adequacy of the exploratory factor analyses (EFA) was performed through the examination of Bartlett's test and the Kaiser-Meyer-Olkin (KMO) measure. The statistical significance Bartlett's test of $p<0.05$ was used. The KMO statistics range from 0.7 medium adequacy, 0.8 high adequacy and 0.9 very high adequacy (Garson, 2016). In evaluating construct validity, 46 items of the questionnaire were factor analysed. By so doing, in exploring the structure underlying the 46 items, principal component analysis was

used. Items which did not sufficiently measure the same underlying construct were excluded, and this was determined by factor loadings greater than 0.4 (Puad, Som, Sultan, Abidin, & Marzuki, 2012; Ertz, Karakas, & Sarigöllü, 2016). To assess whether the latent variables or proposed model was adequately described by the regression paths and indicator variables, Partial Least Squares path modeling was performed using Smart-PLS software. The goodness of fit of the model was evaluated through the standardized root mean square residual (SRMR) (Ringle, Bido, & Mackenzie, 2014). The instrument was also assessed for internal consistency using Cronbach's alpha (Bhattacherjee et al., 2017)

5.7.1.1 Descriptive Statistics

The current study made use of descriptive statistics. This entailed the usage of frequencies and percentages to explain demographic characteristics of the study participants. This included the gender, age and participants' level of study. Futher, descriptive statistics was used to assess participants' familiarity, usage and access to the internet. The data was further tested for normality. Kolmogorov-Smirnov test was conducted to assess whether or not constructed variables were normally distributed. In making this interpretation, the data was also assessed for statistical significance, with significance level of ($p<0.05$).

5.7.1.2 Reliability Test

All reliability testing requirements through Cronbach's alpha were satisfied as presented in Table 6.2. Reliability testing aims at establishing measurement consistency of an instrument, and whether research results can be replicated (Bryman et al., 2011). Reliability of a measurement instrument points to the extent to which it presents consistent results despite being applied at different time frames (Zikmund et al., 2013). This speaks to the possibility by a researcher to use the same instrument for a similar sample in order to get the same results. The reliability of the scale was conducted through analysis of items. This was conducted in order to establish how well the items on an instrument measure the same constructs. The expectations being that all items proposed would be measuring the same construct load together (Bhattacherjee et al., 2017).

In assessing reliability, the Cronbach alpha was used since it is regarded as the effective measure for items. According to Pallant (2010) and Bryman et al. (2011), scales reliability coefficients greater that 0.7 are deemed adequate and those with coefficients below 0.7 regarded as not good. Further, the minimum acceptable Cronbach's alpha coefficient of 0.7 is regarded appropriate as suggested by Blumberg, Cooper and Schindler, (2011); and Zikmund et al. (2013). In the process of assessing for Cronbach coefficients, composite realibility was

also calculated. Composite reliability test is regarded to be superior when compared to Cronbach's alpha, and the researcher found that all its scores were higher than those of the Cronbach (Garson, 2016). Also, the standardised root mean square (SRMR) is regarded as one the common technique in assessing the approximate fit of a model. This is because it assesses discrepancies between the observed correlation matrix and the model implied correlation matrix. SRMR values should be less than 0.10 to indicate a good fit (Garson, 2016).

5.7.1.3 Exploratory Factor Analysis

Exploratory factor analysis (EFA) was conducted. It was based on principal component analysis and varimax rotation (Garson, 2016). This was conducted in order to assess the factor structure of all scales used in the study. In the process, factor loadings with coefficients below 0.4 were excluded for further analysis as recommended by Mat Som, Marzuki, Yousefi, and AbuKhalifeh (2012); and Ertz, Karakas, and Sarigöllü (2016). Further, the data was assessed to evaluate if it satisfied the conditions of exploratory factor analysis through conducting Kaiser-Meyer-Olkin (KMO) test. The KMO sampling adequacy values above 0.5 were accepted, and with Bartlett's test of sphericity result that were statistically significant (Pallant, 2010).

Further, Spearman correlation coefficients test was conducted to determine the relationship amongst the study variables. The Spearman correlation coefficients test is a non-parametric test that assesses what changes take place to one variable as the other changes. If a positive relationship exists between variables, the coefficient will range between 0 to 1, and the closer the value is to 1 the stronger the relationship is between the varibales. Whereas, if a negative relationship exists, the coefficient will range between -1 to 0.

5.7.1.4 Structural Equation Modelling

In the current study, structural equation modelling (SEM) was conducted to assess the relationship between latent variables and their observed variables that make up a model (Ringle, C.M., Wende, S. Becker, 2015). Structural equation modelling (SEM) is a variance based technique used on non-normal data and formative measures (Garson, 2016). Notably, the structural equation modelling (SEM) uses multivariate statistical technique for factor analysis and regression analysis (Garson, 2016). The multivariate statistical technique was used to assess the direct and indirect relationships between causal variables (Raziuddin and Vaithianathan, 2018).

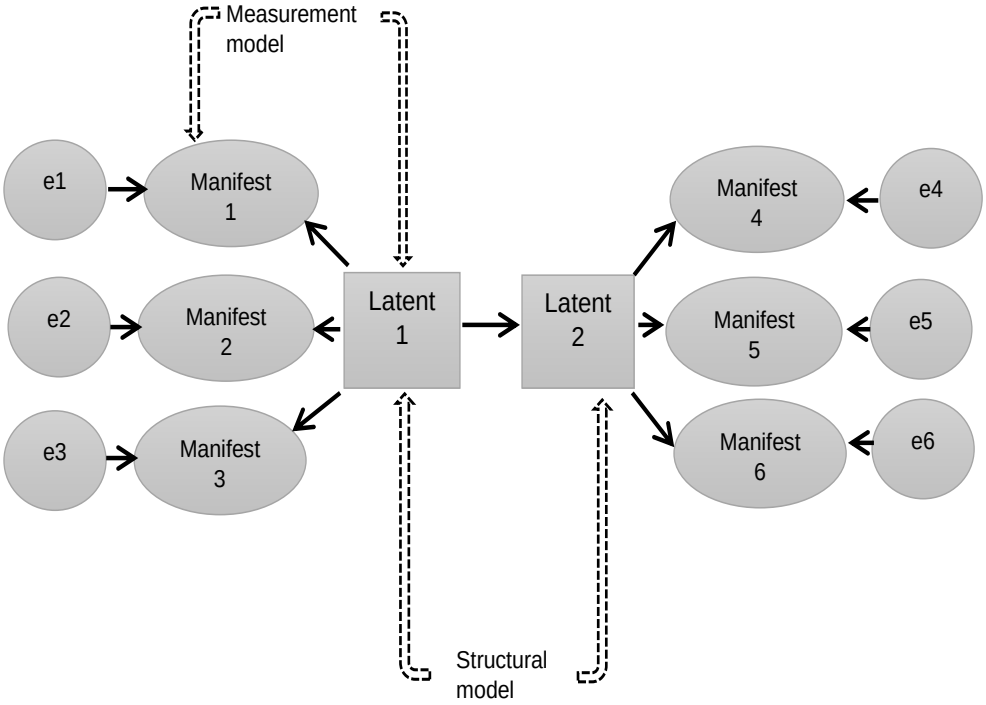

Figure 5.3: Path model for measurement and structural model

As illustrated in Figure 5.3, the Structural Equation Modelling (SEM) is composed of the two models, that is the measurement (outer model) and the structural (inner model), with the measurement model representing the relationship between each latent variable and its manifest variables, whereas the structural model addresses the paths between the latent variables (Ringle, C.M., Wende, S. Becker, 2015; Hair, Sarstedt, Matthews, and Ringle, 2016). In a path model there are two variables. These are latent variables (unmeasured) and manifest variables (measured). The black solid arrows represent the predictive relationship between the latent and manifest variables in a model. For example, in this study, key variables that cannot be measured (latent variables) are Digital Government Ambidexterity, municipal information quality and public value. Whereas manifest variables are those that can be directly measured during data collection (Hair, et al., 2016).

Beside variables being either a latent or manifest variables, these variables can also be regarded as exogenous or endogenous variables as illustrated in Figure 5.4. Endogenous variables are dependent in nature, and are explained by other variables, whereas exogenous variables are independent in nature. However, in assessing the interrelationships between exogenous and endogenous variables, Partial Least Squares – Structural Equation Modeling (PLS-SEM) was employed.

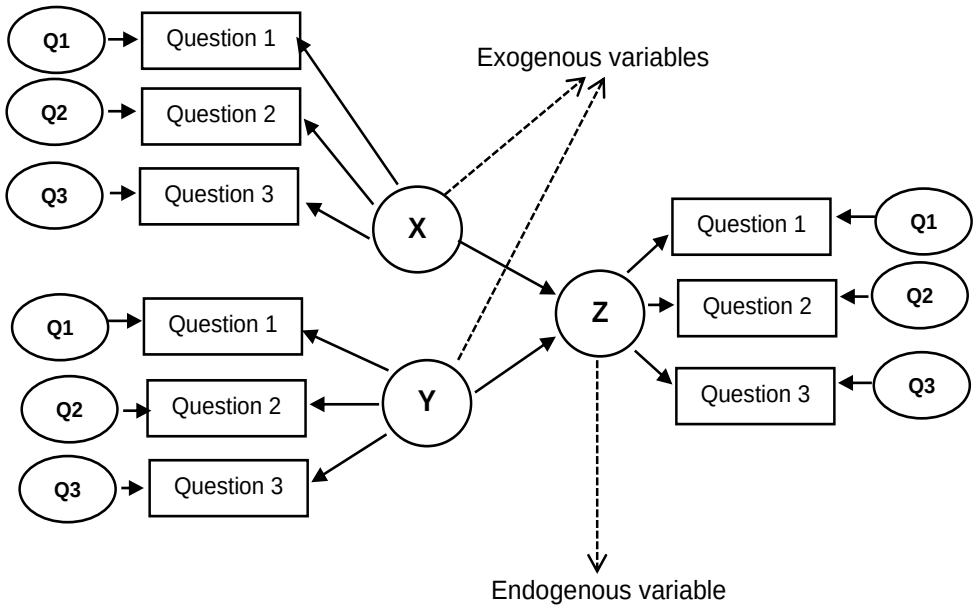

Figure 5.4: Endogenous and Exogenous variables

5.7.1.5 Partial Least Squares-SEM

Partial Least Squares-SEM (PLS-SEM) also known as variance based SEM, is a non-parametric multivariate technique (Leguina, 2015). PLS-SEM predominantly relates to the prediction and explanation of key constructs and identifiable observable variables (Garson, 2016). According to Ringle, Wende, and Becker (2015), PLS-SEM is regarded as the best for models with either reflective and formative constructs, and is significant to theory or model extention and development. See Figure 5.5 (page 110). With reflective model, the focus is that construct forms manifest indicators, whereas under formative model, it is manifest indicators which cause the construct (Garson, 2016). In addition, PLS-SEM technique is preferred because of its ability to assess the adequacy and validity of measurement model, simultaneous evaluation of hypotheses and relevance predictive abilities of complex frameworks particularly the current testing of 14 hypotheses (Leguina, 2015).

Given that all blocks reflect a linear combination with their items, PLS-SEM is preferred over CB-SEM which may have limitations associated to improper solutions (Heirati, 2012; Henseler, Hubona, and Ray, 2016). PLS-SEM is more preferred compared to CB-SEM because PLS-SEM can still present expected results despite the complexity of the path models and also, the technique maximises the variance explained for all endogenous constructs (Henseler, Ringle, and Sarstedt, 2015; Ringle, Wende, Becker, 2015; Garson, 2016). Further,

for more complex models, CB-SEM may suffer from limitations associated to the decline of discrepancy indices such as the AGFI, GFI and RFI (Henseler et al., 2016; Hair, et al., 2016).

Based on the stated advantages associated with PLS-SEM, the current study employed the technique. The choise of Smart-PLS was also based on its appropriateness for variables not normally distributed. Further, this study sought to predict the extent of simultaneous digital innovation for digital government platforms towards Transformational Government. Given the moderating role of digital government policy implementation and the mediation effect of municipal information quality, PLS-SEM technique is deemed appropriate for this current study (Henseler et al., 2016). PLS-SEM has for some time been predominantly used in management literature, and in the context of public sector (Heirati, 2012; Nguyen, 2014; Panagiotopoulos, 2016; Plimmer, Bryson, and Teo, 2017; Berlilana et al., 2018; Wilms, Winnen, and Lanwehr, 2019; Liang et al., 2019).

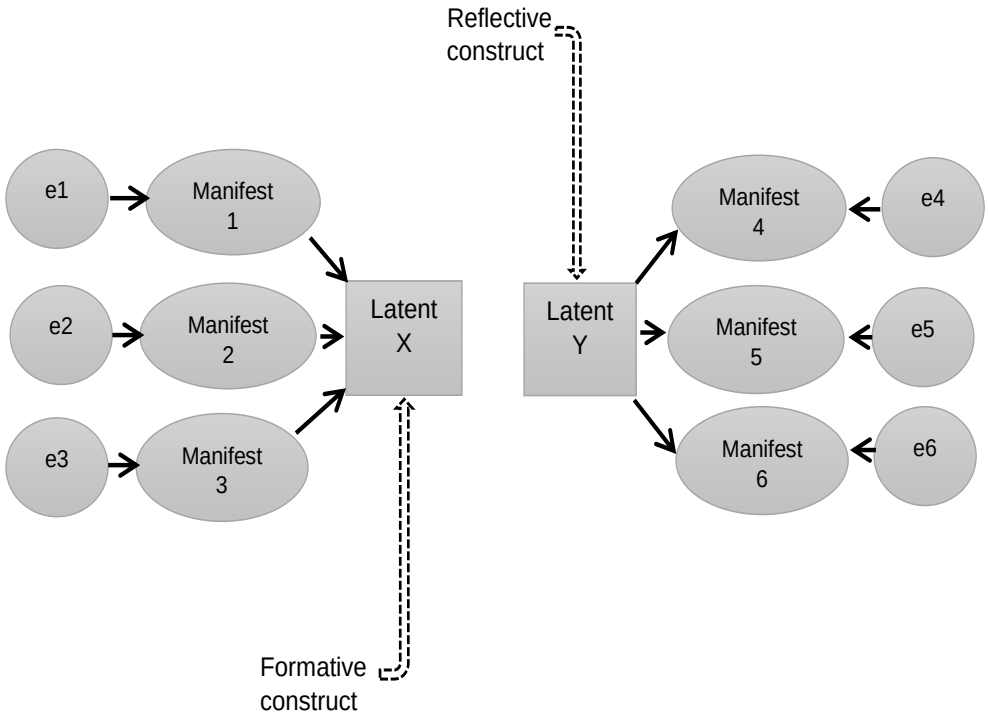

Figure 5.5: Formative and reflective models

5.8 Steps on Focus Group Interview

Focus group interviews is a qualitative approach commonly used as a complement to a quantitative study, to answer questions such as “why” and “how”. The moderation effect of digital government policy implementation could not be statistically tested, and as a result, focus group interviews were held comprising of thirteen paricipants selected from different

organisations including municipalities in the field information sysyems, computer science and business computing. The focus group discussion was necessitated by the feedback from a pilot test of the instrument indicating that citizens may not have sufficient knowledge regarding the importance of digital government policy implementation in municipalities hence its exclusion from the initial instrument.

A thematic analysis approach was used for identifying, analysing, organising, describing and proving feedback on themes found from the dataset (Nyumba, Wilson, Derrick, & Mukherjee, 2018). Thematic analysis is a flexible approach that can be used across a range of epistemological questions (Khan et al., 1991). The following steps were conducted for thematic analysis;

Step 1: Data collection

The data was collected from the participants through transcribing of the data; thus writing down initial notes on contributed ideas.

Step 2: Data familiarisation

Familiarisation of data was achieved by reading the transcripts several times, and reading the observational notes captured during the interview and summary notes which generated after the interview (Rabiee, 2004).

Step 3: Initial coding

In the process of identifying thematic framework, notes in the form of short phrases were created from data sources. The outstanding or dominant terms within data sources were identified and aided in capturing key concepts from data sources with regards to the research objective (Nili, Tate, & Johnstone, 2017).

Step 4: Theme search

Data was sorted and put together according to captured key concepts which eventually informed themes (Khan et al., 1991). Themes are similary ideas or components put together so as to enable the researcher to understand portions of data sources (Rabiee, 2004).

Step 5: Themes assessment

The stage relate to the enhancement of the developed and extracted themes (Nili et al., 2017). In process themes were assessed to established if they were a reflection of data sources, and the merging process was carried out several times as means of refining the themes.

Step 6: Naming of themes

The remaining dominant themes after the refinement process were identified, named and linked to the respective data sources from which they were developed.

Step 7: Report writing

This was the last step of the thematic analysis process, which began by identifying, analysis and subsequently report writing.

5.9 Ethical Consideration

The researcher ensured that ethical guidelines and procedures were adhered to. This was done by ensuring that ethical clearance forms are completed and approved by the Research Officer at the University of Venda. However, the researcher got the approval to collect data from the Ethics committee.

To remain compliant, the researcher got permission from the three municipalities, Bulawayo, Gweru and Victoria Falls. All respondents who participated were informed of the aim of the research. Information was sought in good faith, and is intended for academic purposes only. Further, the researcher assured anonymity of all respondents. The subjects were informed about the research before they decided to take part and were also assured that their responses would be treated with rigorous confidentiality and would be used for academic purposes only (Bryman et al., 2011). In addition to ensuring confidentiality and anonymity of the respondents, research outcomes were be reported in aggregate form to protect identities of respondents. Further, the researcher disclosed his true identity from the onset as a student carrying out research. Further,

5.10 Chapter Summary

A detailed review of the research paradigm and the justification of the paradigm have been presented. Specifically, the discussion in this chapter focused on the strength and limitations of positivism and interpretivism paradigms. Further, in the discussion of the two paradigms, strength, limitations and justification of positivism as the paradigm adopted in the study was presented. This was followed by an overview of the research strategy and research design. With regard to the research design, the researcher employed a cross sectional survey design embedded within the conclusive research approach which is descriptive in nature, as a means to find answers to the research questions. The study used a survey design, and it was deemed appropriate to the current research given the researcher's intention to generalise results to a population from which the sample data was obtained.

The research design was followed by participant selection, sampling, multistage sampling and sample size determination. Citizens from three municipalities which constitute Metropolitan, City council and Municipality formed the subjects from which data was collected. Further, in determining municipalities to participate in the study, a multistage sampling was applied. Municipalities were grouped according to their status, and thereafter they were selected using a random number generator software. Determining the sample size, the researcher used the research a ratio of the number of items in the questionnaire to respondents. That is to say, at a maximum, for every question (or item) there should be at least 10 respondents or at minimum there should be at least 5 respondents (Pallant, 2010; Ayantunji, 2016).

A five point lirket scaled questionnaire was designed as a data collection instrument, and data was analysed using SMART-PLS. This was followed by content and construct validity in order to ensure research credibility. The data collection instrument was subjected to reliability testing with a Cronbach's Alpha of 0.7 (Zikmund et al., 2013; Garson, 2016). A detailed review of ethical consideration was presented in order to promote citizen voluntary participation. Research ethics was achieved through ensuring that there was ethical clearance, seeking to participants to attain their consent to participate in the study, participant anonymity and participant privacy.

CHAPTER SIX

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

6.1 Introduction

The previous chapter presented the methodological groundwork of this study. In this chapter, detailed research findings on the relationships between concepts i.e. ambidextrous digital innovation, information quality and public value; and their interpretation is presented and discussed further. Research results of the data analysis are presented first, followed by a discussion of these results drawing on mainstream literature related to these distinct concepts.

6.2 Response Rate

A total of 690 self-completion questionnaires were distributed by the researcher and research assistants to willing citizens from three municipalities namely Bulawayo metropolitan, Gweru city council and Victoria Falls municipal. From the total number of questionaires distributed, 603 were correctly completed, and found usable for data analysis. The correctly completed questionaires represented a response rate of 87%. The remaining instruments were either spoilt or had too many missing values. A response rate of this scale is generally considered appropriate for data analysis. Considering the response rate for this study (87%), it is above the minimum acceptable response rate of 50 % as suggested by Bryman et al. (2011) who argue that a response rate below 50 % is unacceptable. Bearing in mind that the response rate of 603 was drawn from a sample size of 690, this is regarded appropriate for making generalisations about the entire population. While discussing the response rate, Sekaran (2013) notes that achieving a higher response rate is generally possible when surveying a large population, hence the 87 % response rate for this study is therefore considered acceptable.

6.2.1 Demographics

This section provides an overview of the demographic profiles of the sample, and is constructed along the age group, gender and educational levels as presented in Table 6.1

6.2.1.1 Age of Respondents

As shown in Table 6.1, there is a wide variance in the three age groups from three Zimbabwean municipalities. The majority of respondents (citizens) were in the age group

above 36 years constituting 64 %. About 31 % of the respondents represented a youthful population aged between 25-35 years, and this group is followed by the 18-24 age group, which comprises 5%. It can be inferred from the respondents demographics that most of them belonged to the economically active population. With the age group of 36 years and above in dominance is reflective of the economically active population that is also active in the utilisation of Internet and digital technologies (Dube and Gumbo, 2017).

This view is supported by the Zimbabwe National Statistics Agency report 2017 which states that Zimbabwe's economically active population stand at 69.5 % which is (5.6 million) of the total population against a total youthful population of over 8 million (Zimbabwe National Statistics Agency, 2017). Further, as presented in various publications, Zimbabwe's active mobile subscription stands above 12.9 million, and Internet usage is pegged at more than 8.7 million. This is ubiquitous of digital technologies in the modern world (Zimbabwe National Policy for Information and Communication Technology, 2015; Potraz, 2017; Potraz, 2018; Potraz, 2019).

In fact, collapsing the age groups together to get a collective picture, reveals that the 15-64 years age groups constitutes the majority of the population (over 8 million of the 14 million total population). This study therefore suggest that most people constituting the labour force in the Zimbabwean labour market, mostly the economically active groups, form the majority of digital technologies users through Internet and mobile Internet subscriptions.

6.2.1.2 Gender of Respondents

In terms of gender, as presented in Table 6.1, females formed the majority respondents at 57%, whilst 43% were males. There is a moderate dominance of females over males, and this could be attributed to the numerical dominance of females over males. Ordinarily, from the country's population statistics, the proportion of female to male population is 52 % and 48 % respectively (Zimbabwe National Statistics Agency, 2017). With that in mind, the statistics reveal that the country's literacy levels were 97% by the year 2011. As such it can be inferred that the female population, given their numerical dominance over males, were also the majority in terms of literacy levels. Heeding the aforementioned view, it can be further inferred that females dominate in the utilisation of the Internet and digital technologies (Zimbabwe National Policy for Information and Communication Technology, 2015).

The Zimbabwe National Statistics Agency report of the 2017 states that the female population dominates in the highest level of education completed beginning from pre-primary to doctoral programmes. The statistics reveal that the female population dominates by 51.7% comprared

to the male population at 48.3%. Contrariwise, the United Nations report 2018 reveals that there is a lack of gender equality in access to the Internet and digital technologies. The same report notes that in 2017, about 51% of men globally were online compared to about 45% women. Another reason suggested in the report for lower Internet and digital technology utilisation amongst women is the lack of content geared towards them. However, some efforts are underway to promote digital technology usage amongst women in countries such as South Africa and Malaysia (United Nations, 2018).

6.2.1.3 Respondents' Level of Education

A variety of qualifications across the sample regarding respondents' level of education is presented in Table 6.1. A large number (48%) of the respondents have first degrees, while 30% have diplomas and further 19% have master's degrees, lastly 3% have secondary education level. These findings are consistent with those from Zimbabwe National Statistics Agency report 2017 which states that the country's literacy levels were 97% by the year 2011. This is indicative of a nation with well-educated citizens. The statistics also reveal that a good number of the participants are literate, as such, it can be inferred that they are better exposed and knowledgeable regarding the usage of Internet and digital technologies. In some sense, it can further be suggested that most of the instruments were completed by knowledgeable citizens who well understood the benefits of using digital technologies.

Further, as presented in the Zimbabwe National Statistics Agency report 2017, the literacy rate for the population aged 15 and above by gender is 96 % for male and 93 % for female cementing the notion that Zimbabwean citizens are well educated. Mindful of the previously stated view, this comes as a surprise to have a nation with such high literacy rate yet the utilisation of governmental digital technologies such as web-based ICTs still remain low (Mawela et al., 2017). Further, it can be inferred from this latter observation that municipalities lack on digital innovation, a challenge that affects the quality of their information aimed towards enhancing public value.

6.2.2 Respondents' Internet Familiarity and Usage Habits

In light of the internet familiarity and usage habits, the current study focused on respondents' primary use of the internet, respondents' familiarity with the internet and respondents' daily internet usage. Lastly, the study also focused on where respondents accessed the internet from.

6.2.2.1 Respondents' Primary Use of Internet

As presented in Table 6.1, the majority of the respondents constituting 43% use Internet on e-mails, WhatsApp and Facebook, whereas 38% of the respondents use Internet for games, music, research work, work and entertainment. A further 15% of the respondents were found to be using the Internet for information and product search, whereas a small fraction of the population i.e. 4% were found to be using the Internet for online bills payment. The results reflects diverse usage of the Internet by Zimbabwean citizens possibly suggesting that citizens are knowledgeable in the usage of digital technologies. This is because the popularity of digital technologies has increased such that individuals use them in many domains of modern life, for example in education, commerce and social interaction (Ayantunji, 2016; Tsokota, 2017).

These findings are consistent with those from Potraz report (2019) which highlights the increase on Internet and data usage on social media, with WhatsApp accounting for 60.9%, Facebook 12.7% and data utilisation accounting for 26.4%. Perhaps as with other data utilisation, that may possibly include the use of e-mails, research and transactions carried out through municipal digital technologies. Mindful of the increase in social media usage by citizens, it should be noted that there is a significant increase on active Internet subscriptions. The internet subscription has been constantly growing between 2015 to 2019. As an example, in 2019 active Internet subscription increased to 8.5 million through utilisation of technologies such as 2G, 3G, 4G, HSDPA, ADSL, LTE among others. However, something worth noting pertaining to introduction of new technologies, Zimbabwe is yet to introduce 5G technology. Interestingly, as the popularity of digital technologies-driven communication increases in many different domains of modern life, the same cannot be said about the usage of digital government platforms in the context of municipalities from the developing countries such as Zimbabwe (Nhema, 2016; Ayantunji, 2016; Dube and Gumbo, 2017).

6.2.2.2 Respondents' Familiarity with Internet

The results in Table 6.1 shows that 34% of the respondents have been using the Internet for over 11 years, 33% for 7-10 years, 27% for 4-6 years and 6% for 1-3 years. Other than the respondents who are familiar with the use of the Internet for a period of between 1-3 years, there is a moderate balance on respondents who are familiar with the Internet covering longer periods from 4 years and above. This could mean that citizens have been, and are still making use of the Internet and digital technologies possibly because of the benefits associated with its use, judging from those with many years of familiarity with Internet usage. In addition, it can also be suggested that digital technologies have become ubiquitous, and its diffusion is continuously improving in the context of Zimbabwean citizens. In consensus to the

aforementioned statement, Nhema (2016) also holds the view that Internet and digital technologies in Zimbabwe has somewhat penetrated nearly all the aspects of citizens' daily lives. This is because citizens use Internet and digital government platforms, not only for communication but for shopping, work and networking. This Internet familiarity by most of Zimbabwean citizens is also indicative of their literacy levels which was rated to be at 97% by 2011 (Zimbabwe National Statistics Agency, 2017). Suggesting that the more an individual becomes educated, the more he/she realises benefits associated with using the Internet and other digital technologies.

6.2.2.3 Respondents' Internet Usage per Day

Presented in Table 6.1, are different times an individual citizen spends on Internet across the sample. A sizeable number—31% of the respondents spend between 3-5 hours on the Internet per day, 29% spend 5 hours or more, 27% spend between 1-3 hours, 9% spend up to 1 hour, whereas 4% spend less than 1 hour. The Internet and digital technologies usage has been regarded as key communication tools by many such that living without it for some is almost impossible.

As suggested by Nhema (2016), Internet and digital technologies are not only observed as communication tools, but as a means for networking, work and shopping. Further, Internet and digital government platforms are viewed as instrumental in many domains of modern lives including education and social interaction (Ayantunji, 2016). The usage of Internet has tremendously increased with the introduction of social media platforms such as WhatsApp and Facebook accessed through different types of communication devices. With this high rate of the number of hours an individual spends on the Internet, it can be suggested that it is somewhat addictive to many including the adults. In view of the substantial amounts of time spent by individuals on internet, Skryabin, Zhang, Liu and Zhang (2015); Aramide, Ladipo and Adebayo (2015); Kayisire and Wei (2016) and Lee, Hong, Hwang and Lee (2017), argue that in the 21st century Internet and digital technologies usage has become addictive and compulsive to many including students and young adults. Further, as suggested by these scholars, Internet and digital technologies have become habitual to many citizens (Kayisire and Wei, 2016). This is because Internet and digital technologies are used by many for a wide variety of activities such as information disseminating and making transactions.

6.2.2.4 Internet Access by Respondents

As presented in Table 6.1, the majority of the respondents 54% access the Internet from their workplace, whilst 36% of the respondents access Internet from their homes. A further 9% of

the respondents access the Internet from either college or school, whilst 1% access it from hotspots. Regarding the 54% economically active respondents accessing the Internet from the work-place and 36% from home, it may suggest that the presence of high Internet and digital technologies diffusion rate among Zimbabwean citizens is high.

This also explains the widespread usage of the Internet and varied digital technological tools as a means of communication. The same cannot be said regarding the usage of the Internet and digital technologies by municipalities in the delivery of public services. Perhaps this may suggest that given the diffusion and ubiquitous of digital technologies in the 21st century, the public sector at large, municipalities included, should consider embracing digital innovation, and thus redesign services around the needs of citizens if they are to create sustainable public value (Ayantunji, 2016; Dube and Gumbo, 2017).

Table 6.1: Sample description

Variable	Category	Percentage (%)
Gender	Male	43
	Female	57
Age of participants in years	18-24 years	5
	25-35 years	31
	36 years and above	64
Respondents' level of study	Secondary	3
	Diploma	30
	First degree	48
	Masters degree	19
Respondents' primary use of Internet	Online bills payment	4
	Information and product search	15
	Games, music, research work, Work and entertainment	38
	E-mails, WhatsApp and Facebook	43
Respondents' familiarity with Internet	1-3 years	6
	4-6 years	27
	7-10 years	33
	11 years and above	34
Respondents' Internet usage per day	Less than 1 hour	4
	1 hour	9
	1-3 hours	27
	3-5 hours	31
	Above 5 hours	29
Internet access by respondents	Hotspots	1
	College or School	9
	Home	36
	Work place	54

6.3 Measurement Model: Reliability and Validity

Table 6.2 (page 119) presents reliability and validity tests. To assess the credibility of the study variables, reliability and validity tests were carried out on the dataset. According to Field (2009) and Bhattacherjee et al. (2017), it is of paramount importance to assess internal consistency—the degree of homogeneity among the items to be factor analysed. In the current study, it becomes important to test for internal consistency because the survey instrument was new and had not been used previously in any study. To confirm the fitness (goodness of fit) of the measurement (outer model) the following criteria were assessed; dimensionality for Cronbach's alpha, composite reliability and average variance extraction (AVE), adequate factor loadings for convergent and discriminant validity, lastly standardized root mean square residual (SRMR).

To test for internal consistency, the Cronbach's alpha and composite reliability test were conducted. Except for one factor perceived security that had a Cronbach's alpha coefficient of 0.685 which may be acceptable because is close to the coefficient 0.7, and more so its composite reliability is 0.808. The composite reliability is considered superior compared to Cronbach's alpha (Garson, 2016). All the other ten factors had Cronbach's alpha coefficients values of greater than 0.7, which is deemed acceptable according to (Pallant, 2010; Field, 2015).

The outcome of the tests reflects the internal consistency of the items purported to measure a construct. The rule of thumb state that, an alpha score of at least 0.7 reflects acceptable levels of reliability (Bryman et al., 2011; Zikmund, Babin, Carr, and Griffin, 2013; Bhattacherjee, Morphet, Gutiérrez Bayo, Nam, and Pardo, 2017).

Table 6.2: Reliability analysis results

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	No of items
Exploitative-EIW	0.778	0.857	0.604	5
Explorative-ERW	0.742	0.827	0.499	5
Information usability-IUS	0.714	0.813	0.529	4
Information readability -IRD	0.859	0.905	0.706	4
Information relevance-IRL	0.743	0.838	0.565	4
Information trustwor-thiness-ITR	0.759	0.846	0.581	4
Information complete-ness-ICP	0.878	0.917	0.734	4
Personal utility-PUT	0.730	0.831	0.553	4
Perceived security-PSC	0.685	0.808	0.530	4
Participatory democracy-PDE	0.873	0.913	0.725	4
Social benefits-SOB	0.844	0.896	0.683	4

6.3.1 Average Variance Extracted (AVE) Measurement

After having satisfied reliability requirements through Cronbach's alpha and checking for composite reliability, convergent validity was also tested. Convergent validity which is ascertained through highly correlated variables to a single factor, may be tested by measures such as composite reliability or Cronbach's alpha which is appropriate in reflective models.

Also convergent validity was tested through Average variance extracted (AVE). Further, average variance extracted (AVE) indicates the average communality for each latent factor in a reflective model, and as such, indicative of an adequate model. Average variance extracted (AVE) should be greater than 0.5 (Garson, 2016). Table 6.2 shows that the composite reliabilities which are more preferred than Cronbach's alpha are higher than the minimum requirement of 0.70. The values of the construct's convergent validity, Average variance extracted are higher than the minimum value of 0.5, except for Explorative radical innovation (ERW) which is 0.499. The level of statistical significance was computed through bootstrap resampling method of 500 subsamples (Garson, 2016; Raziuddin and Vaithianathan, 2018). Despite the slight variance in Explorative radical digital innovation, the condition of convergent test are deemed satisfactory.

6.3.2 The Standardised Root Mean Square Residual (SRMR)

As shown in Table 6.3, the standardised root mean square residual is an approach that is used to assess the approximate fit of a model. According to Ringle, Bido and Mackenzie (2014), standardised root mean square residual assesses the variance between the observed correlation matrix and the model-implied correlation matrix, and as such a model with a good fit for PLS path models is obtained when SRMR is less 0.10 (Henseler, Ringle, and Sarstedt, 2015; Henseler, Hubona, and Ray, 2016). Therefore, requirement for SRMR was satisfactorily met as both the saturated and estimated models were below 0.10, and this means that, further statistical analysis can be pursued.

Table 6.3: Model fit **(SRMR)**

Saturated Model	**0.075**	0.041	0.044	0.045
Estimated Model	**0.092**	0.045	0.049	0.050

6.3.3 Exploratory Factor Analysis Results

Exploratory Factor Analysis (EFA) a statistical approach for determining the correlation among the variables in a dataset was employed. Based on principal component analysis and varimax rotation with Kaiser normalisation, Exploratory Factor Analysis (EFA) was carried out in order to identify the latent or unobserved variables which underly the correlation patterns of the observed variables in the dataset. A dataset satisfies the conditions for Exploratory Factor Analysis (EFA) if the Kaiser-Meyer-Olkin test (KMO) sampling adequacy value is at least 0.5 and the Bartlett's test of sphericity result is statistically significant where ($p<0.05$) (Field, 2009; Pallant, 2010). A significant Bartlett's test of sphericity $p<0.05$ indicates that there is sufficient correlation between the variables in question and further statistical analysis can be conducted. Further, a decision on the factors to extract and the most appropriate component solution in the current study, both KMO and scree plot were carried out. Factors with Eigen values of at least 1 were retained as advanced for by the rule of thumb, whereas the scree plot takes into account only those factors that appear before the steep decline ends. The Exploratory Factor Analysis for the following theoretical variables are presented below.

6.3.3.1 Extraction Process

Table 6.4 shows KMO of 0.965 which is above the minimum recommended cut off value of 0.5, and a statistical significant Bartlett's test ($p<0.05$) (Garson, 2016). This serves as a confirmation that factor analysis procedure was appropriate for this data.

Table 6.4: KMO and Bartlett's Test

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	0.965
Bartlett's Test of Sphericity Approx. Chi-Square	17918.853
df	1035
significant	0.000

Table 6.5 presents the total variance explained which is used in the reduction of measurement items into manageable figures for further statistical analysis. As given in the table, 11 factors were considered under the following latent variables; Digital Government Ambidexterity, municipal information quality and public value. The results show an Eigen value of greater than 1, as presented in Table 6.5 and Figure 6.1 through a screeplot.

Table 6.5: Eigenvalues and percentages of Variance for Factors for the 45 Item Variable Set

Factor	Eigenvalue	% of variance
1	7.32	15.91
2	3.07	6.67
3	2.53	5.50
4	2.31	5.03
5	2.10	4.56
6	2.05	4.46
7	1.83	3.97
8	1.47	3.19
9	1.31	2.84
10	1.20	1.77
11	1.11	1.51

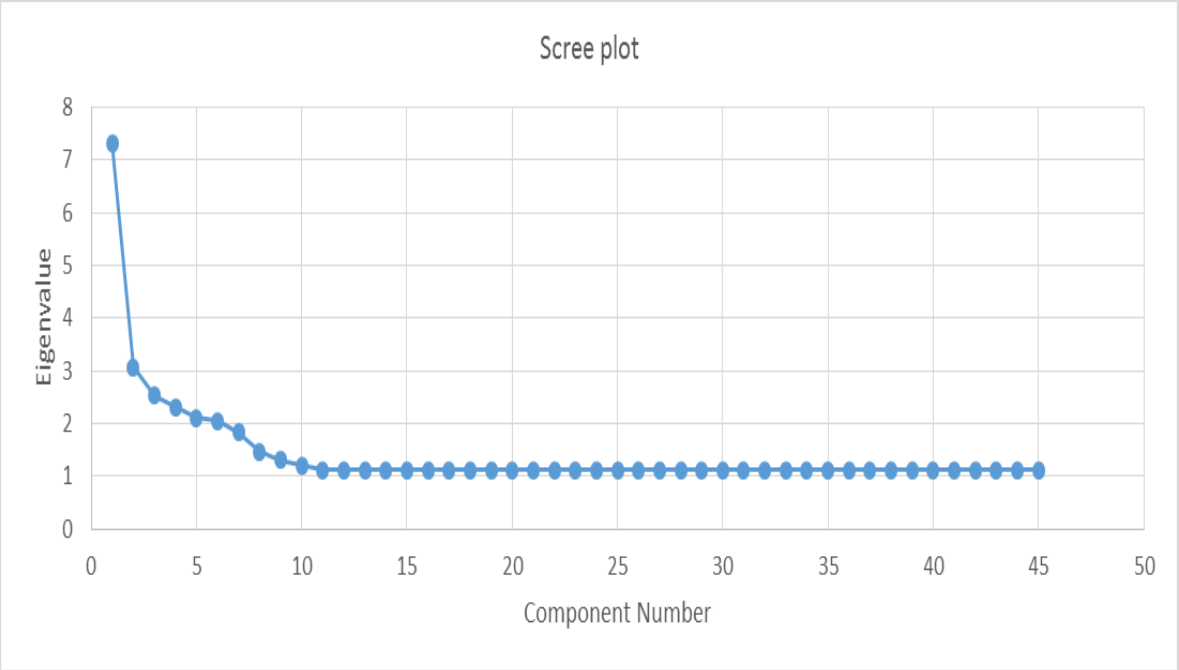

Figure 6.1: Scree plot

Note: Eleven factors were extracted using principal component analysis, varimax rotation with Kaiser normalisation.

6.3.3.2 Factory Analysis Results

Table 6.6 presents exploratory factor analysis results with prepared variables for further statistical analysis. For the purposes of further statistical analysis as suggested by Puad, Som, Sultan, Abidin, and Marzuki (2012); and Ertz, Karakas, and Sarigöllü (2016) only the measurement items with factor loadings greater than 0.4 were retained. One factor EIW 5 was dropped due to lower than 0.4 factor loadings, as a result it could not sufficiently contribute to

a simple factor structure. This resulted in eleven-factor model consisting of 45 measurement items that had loadings above 0.4 as shown in Table 6.6.

Table 6.6: Exploratory factor analysis results

	Factor										
Item codes	1	2	3	4	5	6	7	8	9	10	11
EIW1	0.624										
EIW2	0.833										
EIW3	0.875										
EIW4	0.754										
ERW1		0.839									
ERW2		0.843									
ERW3		0.624									
ERW4		0.471									
ERW5		0.683									
ICP1			0.861								
ICP2			0.884								
ICP3			0.897								
ICP4			0.780								
IRD1				0.747							
IRD2				0.888							
IRD3				0.896							
IRD4				0.820							
IRL1					0.794						
IRL2					0.704						
IRL3					0.714						
IRL4					0.789						
ITR1						0.665					
ITR2						0.797					
ITR3						0.847					
ITR4						0.728					
IUS1							0.541				
IUS2							0.632				
IUS3							0.849				
IUS4							0.838				
PDE1								0.782			
PDE2								0.885			
PDE3								0.898			
PDE4								0.838			
PSC1									0.507		
PSC2									0.868		
PSC3									0.679		
PSC4									0.860		
PUT1										0.698	
PUT2										0.759	
PUT3										0.703	
PUT4										0.809	
SOB1											0.756
SOB2											0.820
SOB3											0.880
SOB4											0.845
Variance explained	15%	6.7%	5.5%	5%	4.5%	4.4%	3.9%	3%	2.8%	1.8%	1.5%
Eigen values	7.32	3.07	2.53	2.31	2.10	2.05	1.83	1.47	1.31	1.20	1.11

Notes: Factor 1=exploitative incremental digital innovation, 2=explorative radical digital innovation, 3=information completeness, 4=information readability, 5=information relevance, 6=information trustworthiness, 7=information usability, 8=participatory democracy, 9=perceived security, 10=personal utility, 11=social benefits.

Factor names were identified on items which loaded on each factor. Factors 1 and 2 focused on measuring the concept of Digital Government Ambidexterity through exploitative incremental digital innovation and explorative radical digital innovation. Factor 1 had four items, (EIW1,EIW2,EIW3 and EIW4). It was named exploitative incremental web portal (EIW), as it relates to measuring exploitative incremental digital innovation. These items were developed along the identified incremental characteristics used to measure an organisational web portal (Dewar, and Dutton, 1986; Saha, Nath, and Salehi-Sangari, 2012; Lee, 2017). Some of the incremental charactristics of a web portal include the availability of images indicating services offered, logical webpage information, page content defined by moving graphics and multi-coloured icons (Malik et al., 2017). This is consistent with literature reviewed as these items were developed to enhance the quality of information towards public value (Acosta-vargas et al., 2017).

Factor 2 had five items (ERW1 to ERW5), and it was named explorative radical web portal (ERW) because it relates to measuring explorative radical digital innovation. In the development of these items, associated radical characteristics of the digital platform included the optimisation for different digital devices, availability of an interactive online payment option, indication of information security and presence language options (Dewar and Dutton, 1986; Kratzer, 2017). This was also consistent with literature as these items were associated with a digital platform which is interactive, showing innovative characteristics and providing quality information that enhances citizen-organisation interactivity (Karkin et al., 2018).

The next set of factors, 3 to 7 were measuring information quality through the factors of information completeness, information readability, information relevance, information trustworthiness and information usability. Factor 3 had four items, (ICP1, ICP2,ICP3 and ICP4). It was named information completeness (ICP) and the items measure information completeness (Fehrenbacher, 2016). In addition, Zaidi (2017) also used information completeness to measure information quality. Factor 4, named information readability (IRD) had four items as well (IRD1, IRD2, IRD3 and IRD4), and the items were used in measuring information readability. Consistent with literature, information readability was used as a factor to measure information quality (Osman et al., 2014; Miraz et al., 2017). Factor 5 had four items, (IRL1, IRL2, IRL3 and IRL4). It was named information relevance (IRL) and the items were used to measure information relevance, a factor which is considered significant in

assessing information quality. This was consistent with literature because the items were used to measure information relevance (Alenezi et al., 2015; Zaidi, 2017). Factor 6 with the following four items (ITR1, ITR2, ITR3 and ITR4) was used to measure information trustworthiness (ITR). The result was also consistent with literature as Lee (2017) and Gil-Garcia et al. (2018) used the items which inform the factor of information trustworthiness to measure information quality obtained through digital government platforms.

In addition, these items were also validated by Fehrenbacher (2016) and Zaidi (2017) to measure information trustworthiness. Factor 7 also had four items (IUS1, IUS2,IUS3 and IUS4). It was named named information usability (IUS), and these items have been widely used in the measurement of information usability particularly in the context of public sector (Verkijika and De Wet, 2018). This result is consistent with literature as these items which inform information usability were found to be fundamental in the measurement of information quality (Acosta-vargas et al., 2017; Perdomo, Cardozo, Perdomo, and Serrezuela, 2017; Malik et al., 2017; Alshetewi et al., 2018). This view corroborates with result from a study by Verkijika and De Wet (2018) who used the items to measure information usability realised through digital government platforms in the context of Sub-Saharan African countries.

Factor 8 had four items, (PDE1, PDE2, PDE3 and PDE4). It was named participatory democracy (PDE). These items were adapted from a framework to measure public value by Talbot (2008). The items were used to measure public value, consistent with the work of Talbot (2008) and Marek (2016). Factor 9, had also four items (PSC1, PSC2, PSC3 and PSC4), and form part of the quadrant balanced score framework on public values by (Talbot, 2008). This factor was named perceived security (PSC), and is also consistent with the framework by (Coyle and Woolard, 2010) who suggests that matters of security and trust are significant in creating public value. Factor 10 had four items also (PUT1, PUT2, PUT3 and PUT4). It was named personal utility (PUT) and is also an element in the balanced scorecard framework on public value by Talbot (2008). Lastly, was Factor 11 named social benefits (SOB) with four items as well (SOB1, SOB2, SOB3 and SOB4). These items are also part of the framework associated with Talbot's work.

6.4. Normality Test for Constructs

The indication is that if variables are not normally distributed, they have a skewed distribution, and therefore non-parametric tests were used. See Table 6.7. The normality test was done in order to determine if variables are normally distributed. This is because the distribution of variables determines the types of tests to be used. For instance, if variables are not normally distributed non-parametric tests are used, whereas if variables are normally distributed then

parametric tests are used. To determine whether or not the constructed variables are normally distributed Kolmogorov-Smirnov (KS) test was used.

To arrive at a conclusion, this study looked at the p-values from the test and compared them with significance level of $p<0.05$. That is, if p-value is less than 0.05, it is statistically significant and reflects a distribution which is not normal, and if p-value is greater than 0.05, the variable is considered non-significant and therefore reveals a normal distribution. All the variables had p-values that are below 0.05.

Table 6.7: Normality test

Variables	KS Statistic	P-value
Organisational Ambidexterity		
Exploitative incremental web portal - digital innovation	0.140	0.000
Explorative radical web portal - digital innovation	0.125	0.000
Municipal Information Quality		
Information usability	0.104	0.000
Information readability	0.164	0.000
Information relevance	0.128	0.000
Information trustworthiness	0.159	0.000
Information completeness	0.163	0.000
Public Value		
Personal utility	0.099	0.000
Perceived security	0.164	0.000
Participatory democracy	0.151	0.000
Social benefits	0.454	0.000

6.5. Spearman Correlation Coefficients

Table 6.8 presents the spearman correlation coefficients which were established. The study carried out a correlation test to examine the association of ambidextrous digital innovation on municipal information quality and public value. The non-parametric tests were used. These correlation tests were performed in order to determine whether or not there was a relationship between ambidextrous digital innovation, municipal information quality and public value. Notably, if a positive relationship does exist between the variables, the correlation coefficient will be positive and it will range between 0 and 1. In addition, the closer the value is to 1, the stronger the relationship is between the variables. If a negative relationship does exist, the correlation coefficient will be negative and it will ordinarily range between -1 and 0. The closer the value is to -1 the stronger the negative relationship between the variables.

To establish whether the variables in question are correlated, the p-value was used. The p-value was compared to a significant level of 0.05, such that if p-value is less than 0.05 we may then come to a conclusion that a statistical significant relationship exists between the variables in question, whereas if it is greater than 0.05, there is no relationship between the variables. All the eleven factors had positive relationships ranging from 0.476 to 0.838, and further they were all found to be statistically significant with p-values that were less than 0.05. The first research objective of the study was to establish the influence of exploitative incremental digital innovation on municipal information quality. As shown in Table 6.8, exploitative incremental digital innovation had a significant positive relationship with all municipal information quality factors namely; information usability ($r = 0.723$, $p < 0.05$), information readability ($r = 0.680$, $p < 0.05$), information relevance ($r = 0.638$, $p < 0.05$), information trustworthiness($r = 0.665$, $p < 0.05$), and information completeness ($r = 0.718$, $p < 0.05$).

The second research objective was to determine the influence of explorative radical digital innovation on municipal information quality. As presented in Table 6.8, explorative radical digital innovation had a significant positive relationship with all municipal information quality factors namely information usability ($r = 0.739$, $p < 0.05$), information readability ($r = 0.591$, $p < 0.05$), information relevance ($r = 0.602$, $p < 0.05$), information trustworthiness($r = 0.719$, $p < 0.05$), and information completeness ($r = 0.729$, $p < 0.05$). The two concepts making up Digital Government Ambidexterity namely exploitative incremental digital innovation and explorative radical digital innovation had also a significant positive relationship ($r = 0.732$, $p < 0.05$). This might confirm the complementarity force rather than a competition between exploitation and exploration concepts of Organisational Ambidexterity towards the success of organisations (Gastaldi et al., 2018). This is against a backdrop of trying to balance the contradictory nature of the two perspectives (exploitative innovation and explorative innovation) may not yield the expected outcomes (Luger, 2014). Some of the reasons advanced challenging the balancing of the two seemingly contradictory nature of these perspectives are associated with the dynamic environment these organisations operate in. This dynamic environment somewhat demands that organisations embrace explorative innovation (Boukamel and Emery, 2017). In contrast, Barrutia and Echebarria (2019) suggest that too much concentration on the exploitative results may lead to inertia, while too much emphasis on explorative results may lead to an outcome of future building at the expense of exploitative innovation. Mindful of that, the integrative sequential application of the perspective (exploitative and explorative) may lead to the realisation of improved performance or public value in the context of the public sector (Kobarg, Wollersheim, Welpe, Spörrle, et al., 2017).

Further, the results are indicative of a siginificant positive relationship between ambidextrous digital innovation and each of the municipal information quality, possibly confirm previous studies which found a positive relationship on the effect of top management team and Organisational Ambidexterity, ambidextrous sustainability and performance of Swedish municipalities (Maine and Svensson, 2018; Umans et al., 2018). In addition, a study conducted by Smith and Umans (2015), found a positive relationship between managerial focus and Organisational Ambidexterity. Particularly, most of the studies that were carried out focusing on the concept of Organisational Ambidexterity, treated the concept as an outcome variable, yet the current study treats the concept as a predictor variable something which makes it unique.

Table 6.8: Spearman correlation coefficients

	Constructs	1	2	3	4	5	6
1	Exploitative EIW - digital innovation	1					
2	Explorative ERW - digital innovation	0.732	1				
3	Municipal IUS	0.723	0.739	1			
4	Municipal IRD	0.680	0.591	0.614	1		
5	Municipal IRL	0.638	0.602	0.654	0.595	1	
6	Municipal ITR	0.665	0.719	0.838	0.574	0.590	1
7	Municipal ICP	0.718	0.729	0.796	0.646	0.696	0.763

* $p < 0.05$

Note: EIW=exploitative incremental web portal (digital innovation), ERW=explorative radical web portal (digital innovation), IUS=information usability, IRD=information readability, IRL=information relevance, ITR=information trustworthiness, ICP=information completeness.

6.6 Partial Least Squares (PLS) Path Modeling

Figure 6.2 shows the measurement and structural model for the proposed framework. To assess whether the latent variables or proposed model is adequately described by the regression paths and indicator variables, Partial Least Squares path modeling was used. This is a non-parametric technique for conducting Structural Equation Modeling (SEM). Unlike

Analysis of Moment Structures (AMOS) software which is based on co-variance, Partial Least Squares is based on the estimation approach. In addition, Partial Least Squares does not make any assumptions about the distribution of data.

The Partial Least Squares-Structural Equation Modeling (PLS-SEM) consists of two models, that is the measurement (outer model) and the structural (inner model).

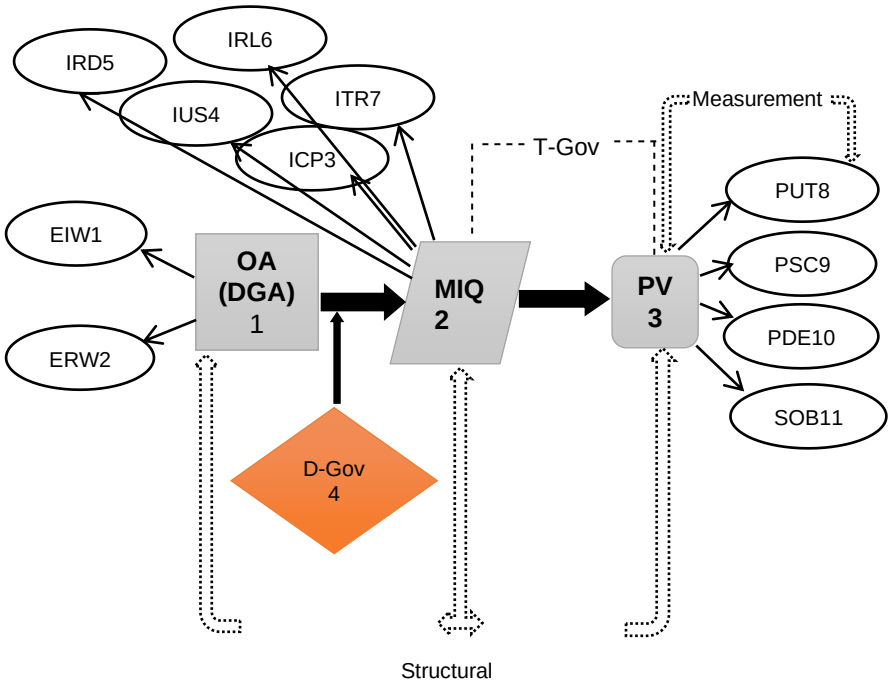

Figure 6.2: Proposed framework showing measurement and structural model

OA=Organisational Ambidexterity, DGA=Digital Government Ambidexterity, MIQ=Municipal Information Quality, PV=Public Value, EIW=Exploitative Incremental Web Portal, ERW=Explorative Radical Web Portal, ICP=Information Completeness, IUS=Information Usability, IRD=Information readability, IRL=Information relevance, ITR=Information trustworthiness, PUT=Personal Utility, PSC=Perceived Security, PDE=Participatory Democracy, SOB=Social Benefits.

The measurement model represents the linkages between observed variables and the latent or unobserved variables. Essentially, it measures reliability and validity of the data. On the other hand, the structural model measures the relationship between latent variables. In the present study, the path modeling was done using Smart Partial Least Squares (Smart-PLS) computer software. The outcomes of the modeling test are presented in section 6.6.2 and 6.6.3 respectively.

6.6.1 Structural Equation Modeling Approach

In an endeavour to statistically analyse structural models and measurements, Smart PLS software for Structural Equation Modeling technique to ascertain relationships between the latent variables and their manifest variables was used (Ringle, Wende and Becker, 2015). PLS-SEM is a variance based technique with various advantages for data analysis, for example, non-normal data, formative measures and complex models. Further, it is usually used in the IS domain and in digital government studies (Liang et al., 2019). In addition, Smart PLS is a regression based technique (Leguina, 2015) developing from path analysis, and is regarded as one of the powerful approaches applied in models with numerous constructs.

6.6.2. Explanatory Power of the Model

To ascertain the predictability of structural model in PLS-SEM coefficient of determination (r^2) values for endogenous variables is used. The coefficient of determination values range from 0 to 1, with high value indicative of high degree in model predictive accuracy (Henseler et al., 2015; Garson, 2016; Raziuddin and Vaithianathan, 2018). Scholars suggest the predictive ability scores to be used in assessing the model (Henseler et al., 2015; Garson, 2016; Raziuddin and Vaithianathan, 2018). For example, a value greater that 0.6 suggestd a high degree in model predictive accuracy, values falling between 0.3 and 0.6 are indicative of a moderate model predictive accuracy. Lastly, values less that 0.3 are indicative of low model predictive accuracy (Garson, 2016; Henseler et al., 2016; Raziuddin and Vaithianathan, 2018).

As presented in Table 6.9, the coefficient of determination values (r^2) for all variables indicates that the proposed model has a good predictive accuracy (Hair et al., 2016). Coefficient of determination (r^2) values for both municipal information quality and public value range from moderate ($r^2 = 0.447$) to high ($r^2 = 0.649$). Moreover, all variables are statistical significant with the p-value of less than 0.05 ($p < 0.05$).

As shown in Table 6.9, a regression equation with information completeness as a dependent variable and Digital Government Ambidexterity as the independent variable was created. This regression sought to determine the influence of Digital Government Ambidexterity has on information completeness. The results indicated that ($r^2 = 0.605$), which means that about 60.5% of the variation in information completeness was explained by Digital Government Ambidexterit. Further, the p-value was statistically significant with a value of ($p<0.05$). Exploitative incremental digital innovation accounted for 39.8% of the variance in the dependent variable. In addition, explorative radical digital innovation accounted for 43.8% of the variance in the same dependent variable.

Further, as presented in Table 6.9, another regression equation with information usability as a dependent variable and Digital Government Ambidexterity as the independent variable was formulated. This regression sought to determine the influence Digital Government Ambidexterity has on information usability. This was done to determine an independent variable that is ambidextrous in nature, and allows one to estimate a simple linear regression equation. The results showed that ($r^2 = 0.618$), which means that about 61.8% of the variation in information usability was explained by Digital Government Ambidexterity. The p-value was statistically significant with a value of ($p<0.05$). Exploitative incremental digital innovation accounted for 39.2% of the variance in the dependent variable. Moreover explorative radical digital innovation accounted for 45.2% of the variance in the same dependent variable.

Table 6.9: Coefficient of determination (R^2)

Variable	Original Sample (O) (R^2) Values	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-Values
Social benefits	0.604	0.611	0.025	24.215	**0.000**
Information completeness	0.605	0.606	0.021	29.090	**0.000**
Participatory democracy	0.642	0.646	0.023	28.230	**0.000**
Information readability	0.481	0.485	0.030	16.004	**0.000**
Information relevance	0.447	0.448	0.028	16.204	**0.000**
Perceived security	0.649	0.654	0.023	28.268	**0.000**
Information trustworthiness	0.558	0.561	0.025	22.692	**0.000**
Information usability	0.618	0.619	0.021	29.724	**0.000**
Personal utility	0.587	0.591	0.025	23.688	**0.000**

Another regression equation with information readability as a dependent variable and Digital Government Ambidexterity as the independent variable was created as shown in Table 6.9. This regression sought to determine the influence Digital Government Ambidexterity has on information readability. The results indicated that $r^2 = 0.481$, which means that about 48.1% of the variation in information readability was explained by Digital Government Ambidexterity. The p-value was statistically significant with a value of ($p<0.05$). Exploitative incremental digital innovation accounted for 53.3% of the variance in the dependent variable, whereas explorative radical digital innovation accounted for 20.1% of the variance in the same dependent variable.

A regression equation with information relevance as a dependent variable and Digital Government Ambidexterity as the independent variable was formulated. As presented in Table 6.9, this regression sought to determine the influence of Digital Government Ambidexterity on information relevance. The p-value was statistically significant with a value of ($p<0.05$). Further, the results showed that $r^2 = 0.447$, which means that about 44.7% of the variation in information relevance was explained by Digital Government Ambidexterity constructs. Exploitative incremental digital innovation accounted for 42.5% of the variance in the dependent variable. Further, explorative radical digital innovation accounted for 29.1% of the variance in the same dependent variable.

As shown in Table 6.9, another regression equation with information trustworthiness as a dependent variable and Digital Government Ambidexterity as the independent variable was created. This regression sought to determine the influence of Digital Government Ambidexterity has on information trustworthiness. The p-value was statistical significant with a value of ($p<0.05$). In addition, the results showed that ($r^2 = 0.558$), which means that about 55.8% of the variation in information trustworthiness was explained by Digital Government Ambidexterity constructs. Exploitative incremental digital innovation accounted for 29.8% of the variance in the dependent variable, whereas explorative radical digital innovation accounted for 50% of the variance in the same dependent variable.

Further, a regression equation with personal utility as a dependent variable and municipal information quality as the independent variable was created. This regression sought to determine the influence municipal information quality has on personal utility. In Table 6.9 we see that ($r^2 = 0.587$), which means that about 58.7% of the variation in personal utility was explained by municipal information quality constructs. The p-value was statistically significant with a value of ($p<0.05$). Information completeness, usability, readability, relevance and trustworthiness accounted for 23.4%, 11.9%, 17.3%, 13% and 22.9% respectively of the variance in the dependent variable.

As presented in Table 6.9, another regression equation with perceived security as a dependent variable and municipal information quality as the independent variable was created. This regression sought to determine the influence that municipal information quality has on perceived security. The p-value was of statistical significance with a value of ($p<0.05$). Further, the results indicated that ($r^2 = 0.649$), which means that about 64.9% of the variation in perceived security was explained by municipal information quality constructs. Information completeness, usability, readability, relevance and trustworthiness accounted for 33.2%, 7.5%, 10.7%, 13.2% and 42.6% respectively of the variance in the dependent variable.

Another regression equation as shown in Table 6.9, with participatory democracy as a dependent variable and municipal information quality as the independent variable was formulated. This regression sought to determine the influence of municipal information quality has on participatory democracy. The p-value was statistically significant with a value of ($p<0.05$). In addition, the results showed that ($r^2 = 0.642$), which means that about 64.2% of the variation in participatory democracy was explained by municipal information quality constructs. Information completeness, usability, readability, relevance and trustworthiness accounted for 14.3%, 6.4%, 52.3%, 17.4% and -0.004% respectively of the variance in the dependent variable.

Lastly a regression equation with social benefits as a dependent variable and municipal information quality as the independent variable was formulated as shown in Table 6.9. This regression sought to determine the influence of municipal information quality has on social benefits. The results showed that ($r^2 = 0.604$), which means that about 60.4% of the variation in social benefits was explained by municipal information quality constructs. The p-value was statistical significant with a value of ($p<0.05$). Information completeness, usability, readability, relevance and trustworthiness accounted for 32.6%, 9.1%, 14%, 22.6% and 8% respectively of the variance in the dependent variable. The regression equations were further presented in the form of a structural equation modelling. See Figure 6.3.

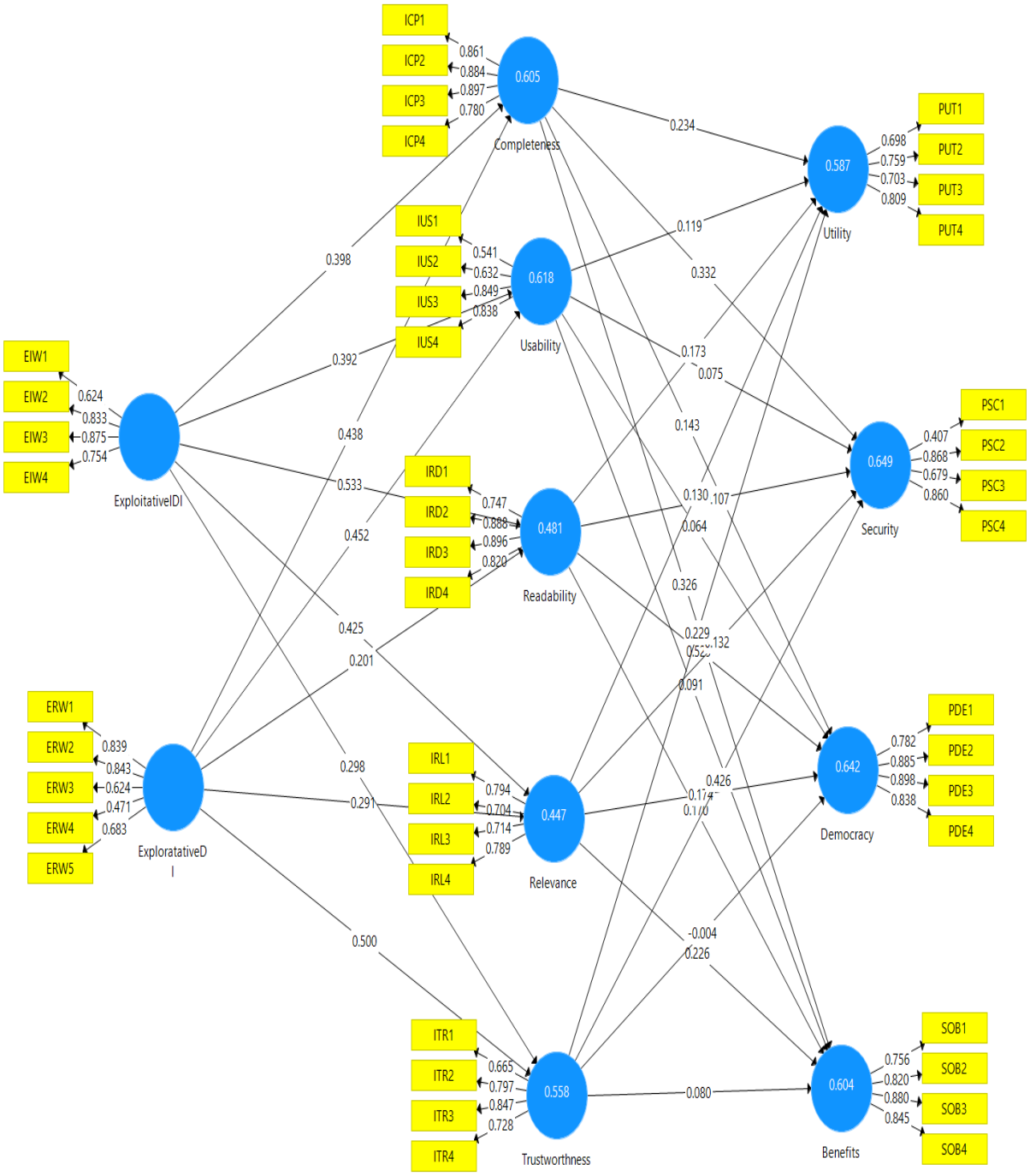

Figure 6.3: Initial screen with SEM calculation used in the Smart-PLS software

6.6.3 Path Analysis Results for Direct and Indirect Relationships

To address the research objectives and hypotheses, Smart-PLS modeling analysis was carried out. The PLS is a non-parametric technique to conduct structural equation modeling (SEM). Unlike Amos which uses covariance, PLS employs variance. Also unlike SEM in Amos, no special assumptions about the distribution of the data are made. As presented in Figure

6.2, PLS seeks to confirm or disconfirm if the model described by the latent variable and regression equation fits the dataset adequately.

In PLS results, a two-step approach (measurement and the structural models) as recommended by Garson (2016) and Raziuddin and Vaithianathan (2018) was used. The analysis was done using Smart-PLS with a sample of 603 respondents. To enable the researcher to examine the relationships between the factors namely; exploitative incremental digital innovation (EIW), explorative radical digital innovation (ERW), information usability (IUS), information readability (IRD), information relevance (IRL), information trustworthiness (ITR) and information completeness (ICP), a theoretical model was proposed basing on the literature on IS Success theory, public value theory and dynamic capabilities (chapter 2 and 3).

Notably, Digital Government Ambidexterity and municipal information quality were tested for direct relationships. Further, tested for direct relationship was Digital Government Ambidexterity and public value, and final the three variables were tested for indirect relationship, thus Digital Government Ambidexterity, municipal information quality and public value.

6.6.3.1 Regression Coefficients for Direct Relationships

The outcome of the relationships of the direct variables relationships are summarised in Table 6.10, ***Digital Government Ambidexterity – municipal information quality***

Table 6.10: Regression coefficients (path) and bootstrap for direct relationship

Constructs	Original Sample (O) Beta-coeffi-cients	Sam-ple Mean (M)	Standard Devia-tion (STDEV)	H	T Statis-tics (|O/ STDEV|	P Val-ues	Decision
Exploitative-EIW ->- Information Com-pleteness	0.397	0.397	0.037	**H1a**	11.569	0.000	Supported
Exploitative-EIW -> Information Reada-bility	0.534	0.533	0.047	**H1b**	11.443	0.000	Supported
Exploitative-EIW -> Information Rele-vance	0.424	0.425	0.043	**H1c**	9.774	0.000	Supported
Exploitative-EIW -> Information Trust-worthiness	0.299	0.297	0.036	**H1d**	8.208	0.000	Supported
Exploitative-EIW -> Information Usability	0.393	0.392	0.034	**H1e**	11.633	0.000	Supported
Explorative-ERW -> Information Com-pleteness	0.438	0.439	0.034	**H2a**	12.998	0.000	Supported
Explorative-ERW -> Information Reada-bility	0.200	0.202	0.049	**H2b**	4.096	0.000	Supported
Explorative-ERW -> Information Rele-vance	0.292	0.291	0.044	**H2c**	6.597	0.000	Supported
Explorative-ERW -> Information Trust-worthiness	0.500	0.502	0.035	**H2d**	14.096	0.000	Supported
Explorative-ERW -> Information Usability	0.451	0.451	0.033	**H2e**	13.511	0.000	Supported

Table 6.10 presents regression coefficients and bootstap for a direct relationship between factors of Digital Government Ambidexterity and municipal information quality. This was followed by the hypotheses validation section 6.6.3.2.

6.6.3.2 Hypotheses Validation

Table 6.10 presents hypotheses statements that were tested for direct relationship, thus Digital Government Ambidexterity and municipal information quality. The PLS-SEM is a non-parametric procedure, and as a way of ascertaining the significance level of the path coefficients a bootstrap re-sampling method with 500 re-subsamples was computed (Garson, 2016; Hair, et al., 2016; Raziuddin and Vaithianathan, 2018). The Table 6.10 indicate that, at (α=0.05), hypotheses **H1a**, **H1b**, **H1c**, **H1d**, **H1e**, **H2a**, **H2b**, **H2c**, **H2d and H2e** are supported. Hypotheses (**H1a to H1e**) were carried out to test the influence between exploitative incremental digital innovation and the five factors of information quality namely; information completeness, information usability, information readability, information relevance

and information trustworthiness. In addition, this test was to assess if minor improvements on digital government platform would enhance information quality. These hypotheses are fully discussed in section 6.7.1.

6.6.3.3 Regression Coefficients for Indirect Relationships

The results of the PLS based on bootstrapping revealed the following outcomes of indirect variables relationships as presented in Table 6.11, ***Digital Government Ambidexterity – municipal information quality – public value.***

Table 6.11 Regression coefficients (path) and bootstrap for indirect relationship

Constructs	Original Sample (O) Beta-coefficient	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	H	P-Values	Decision
Exploitative-EIW -> Completeness -> social benefits	0.118	0.024	5.003	**H3a**	0.000	Supported
Exploitative-EIW -> Completeness -> participatory democracy	0.052	0.020	2.613	**H3b**	0.009	Supported
Exploitative-EIW -> Completeness -> perceived security	0.106	0.021	5.100	**H3c**	0.000	Supported
Exploitative-EIW -> Completeness -> personal utility	0.068	0.021	3.194	**H3d**	0.001	Supported
Explorative-ERW -> Completeness -> social benefits	0.130	0.027	4.790	**H4a**	0.000	Supported
Explorative-ERW -> Completeness -> participatory democracy	0.057	0.022	2.621	**H4b**	0.009	Supported
Explorative-ERW -> Completeness -> perceived security	0.117	0.024	4.862	**H4c**	0.000	Supported
Explorative-ERW -> Completeness -> personal utility	0.075	0.024	3.169	**H4d**	0.002	Supported
Exploitative-EIW -> Readability -> social benefits	0.070	0.023	2.989	**H5a**	0.003	Supported
Exploitative-EIW -> Readability -> participatory democracy	0.268	0.032	8.261	**H5b**	0.000	Supported
Exploitative-EIW -> Readability -> perceived security	-0.078	0.017	4.515	**H5c**	0.000	Supported
Exploitative-EIW -> Readability -> personal utility	0.064	0.022	2.896	**H5d**	0.004	Supported
Explorative-ERW -> Readability -> social benefits	0.026	0.013	2.093	**H6a**	0.037	Supported
Explorative-ERW -> Readability -> participatory democracy	0.100	0.026	3.878	**H6b**	0.000	Supported
Explorative-ERW -> Readability -> perceived security	-0.029	0.010	2.811	**H6c**	0.005	Supported
Explorative-ERW -> Readability -> personal utility	0.024	0.011	2.100	**H6d**	0.036	Supported
Exploitative-EIW -> Relevance -> social benefits	0.088	0.020	4.373	**H7a**	0.000	Supported
Exploitative-EIW -> Relevance -> participatory democracy	0.069	0.018	3.769	**H7b**	0.000	Supported
Exploitative-EIW -> Relevance -> perceived security	0.045	0.015	2.948	**H7c**	0.003	Supported
Exploitative-EIW -> Relevance -> personal utility	0.042	0.016	2.604	**H7d**	0.009	Supported
Explorative-ERW -> Relevance -> social benefits	0.061	0.015	4.161	**H8a**	0.000	Supported

Explorative-ERW -> Relevance -> participatory democracy	0.048	0.013	3.688	**H8b**	0.000	Supported
Explorative-ERW -> Relevance -> perceived security	0.031	0.012	2.628	**H8c**	0.009	Supported
Explorative-ERW -> Relevance -> personal utility	0.029	0.012	2.446	**H8d**	0.015	Supported
Exploitative-EIW -> Trustworthiness -> social benefits	0.020	0.017	1.138	**H9a**	0.256	Not Supported
Exploitative-EIW -> Trustworthiness -> participatory democracy	-0.001	0.015	0.081	**H9b**	0.935	Not Supported
Exploitative-EIW -> Trustworthiness-> perceived security	0.111	0.018	6.047	**H9c**	0.000	Supported
Exploitative-EIW -> Trustworthiness -> personal utility	0.054	0.017	3.186	**H9d**	0.002	Supported
Explorative-ERW -> Trustworthiness -> social benefits	0.033	0.030	1.123	**H10a**	0.262	Not Supported
Explorative-ERW -> Trustworthiness -> participatory democracy	-0.002	0.025	0.079	**H10b**	0.937	Not Supported
Explorative -> Trustworthiness -> perceived security	0.186	0.026	7.243	**H10c**	0.000	Supported
Explorative-ERW -> Trustworthiness -> personal utility	0.090	0.027	3.292	**H10d**	0.001	Supported
Exploitative-EIW-> Usability -> social benefits	0.021	0.024	0.854	**H11a**	0.393	Not Supported
Exploitative-EIW -> Usability -> participatory democracy	0.017	0.021	0.789	**H11b**	0.431	Not Supported
Exploitative-EIW -> Usability -> perceived security	0.003	0.019	0.137	**H11c**	0.891	Not Supported
Exploitative-EIW -> Usability -> personal utility	0.019	0.023	0.832	**H11d**	0.406	Not Supported
Explorative-ERW -> Usability -> social benefits	0.024	0.028	0.846	**H12a**	0.398	Not Supported
Explorative-ERW -> Usability -> participatory democracy	0.019	0.024	0.802	**H12b**	0.423	Not Supported
Explorative-ERW -> Usability -> perceived security	0.003	0.021	0.141	**H12c**	0.888	Not Supported
Explorative-ERW -> Usability -> personal utility	0.022	0.027	0.828	**H12d**	0.408	Not Supported

Table 6.11 presents regression coefficients and bootstap for a indirect relationship between factors of Digital Government Ambidexterity, municipal information quality and public value. This was followed by the hypotheses validation section 6.6.3.4.

6.6.3.4 Hypotheses Validation

This section as shown in Table 6.11 presents hypotheses statements that were tested for indirect relationship, and thus Digital Government Ambidexterity as the predictor variable, municipal information quality as the mediating variable and lastly public value as the outcome variable. As presented in The Table 6.11, it is indicative that, at (α=0.05), hypotheses **H3a**, **H3b**, **H3c**, **H3d**, **H4a**, **H4b**, **H4c**, **H4d**, **H5a**, **H5b**, **H5c**, **H5d**, **H6a**, **H6b**, **H6c**, **H6d**, **H7a**, **H7b**, **H7c**, **H7d**, **H8a**, **H8b**, **H8c**, **H8d**, **H9c**, **H9d**, **H10c** and **H10d** are supported. The

following hypotheses are not statistically significant and are not supported, **H9a**, **H9b**, **H10a**, **H10b**, **H11a**, **H11b**, **H11c**, **H11d**, **H12a**, **H12b**, **H12c** and **H12d**. These hypotheses were conducted in order to establish the mediation effect of municipal information quality between Digital Government Ambidexterity and public value. Of the 40 hypotheses tested, 28 hypotheses were supported suggesting the mediation effect of municipal information quality. Whereas 12 hypotheses were not supported, this suggests that they do not have the mediation effect between Digital Government Ambidexterity and public value. The 12 hypotheses not supported relate to information usability with absolute, non-mediation effect and information with partial mediation. The non-mediation effect of municipal information quality could suggest that citizens found information obtained through digital government platforms unusable, also these results were validated by results from Verkijika and De Wet (2018). A detailed discussion is captured in section 6.7.2.

6.6.3.5 Regression Coefficients for Direct Relationships

The outcome of the relationships of the direct variables relationships are summarised in Table 6.12, ***Digital Government Ambidexterity – public value***

Table 6.12: Regression coefficients (path) and bootstrap for direct relationship

Constructs	Original Sample (O) Beta-coefficients	Sample Mean (M)	Standard Deviation (STDEV)	H	T Statistics (|O/STDEV|)	P Values	Decision
Exploitative-EIW ->-Social benefits	0.126	0.129	0.051	**H13a**	2.461	0.014	Supported
Exploitative-EIW -> Participatory democracy	0.110	0.108	0.046	**H13b**	2.376	0.018	Supported
Exploitative-EIW -> Perceived security	0.058	0.061	0.040	**H13c**	1.448	0.148	Not Supported
Exploitative-EIW -> Personal utility	0.104	0.105	0.047	**H13d**	2.205	0.028	Supported
Explorative-ERW -> Social benefits	0.026	0.026	0.049	**H14a**	0.526	0.599	Not Supported
Explorative-ERW -> Participatory democracy	-0.032	-0.028	0.043	**H14b**	0.751	0.453	Not Supported
Explorative-ERW -> Perceived security	0.223	0.220	0.043	**H14c**	5.168	0.000	Supported
Explorative-ERW -> Personal utility	0.186	0.185	0.043	**H14d**	4.324	0.000	Supported

Table 6.12 presents regression coefficients and bootstap for a direct relationship between factors of Digital Government Ambidexterity and public value. This was followed by the hypotheses validation section 6.6.3.6.

6.6.3.6 Hypotheses Validation

As presented in Table 6.12, hypotheses statements for direct relationship were tested. Particularly, the tested hypotheses statement were for the predictor variable (Digital Government Ambidexterity) and the outcome variable (public value). The results as shown in Table 6.12 indicate that at (α=0.05), hypotheses **H13a**, **H13b**, **H13d**, **H14c** and **H14d** are supported. The following hypotheses are not statistically significant and are not supported, **H13c**, **H14a** and **H14b**. The above stated hypotheses **(H13a**, **H13b**, **H13c**, **H13d**, **H14a**, **H14b**, **H14c** and **H14d)** were condected to test the direct relationship between factors which measure Digital Government Ambidexterity (exploitative incremental digital innovation and explorative radical digital innovation) and factors that measure the construct of public value (participatory democracy, perceived security, personal utility and social benefits). Of the 8 hypotheses tested, 5 were supported with low coefficients beta values and 3 were not supported. This could suggest that not much public value may be realised from exploitative and explorative innovation. However, this could suggest that to realise public value information quality becomes significant. A detailed discussion is provided for in section 6.7.3.

6.7. Discussions of the Findings from the Proposed Model

This section 6.7, provides a brief outline of hypotheses that were supported and those that were not supported. As shown in Table 6.10, all the proposed 10 hypotheses were supported, whereas in Table 6.11 out of 40 proposed hypotheses, 28 were supported and 12 were not supported. Lastly, as presented in Table 6.12 out of 8 proposed hypotheses, 5 were supported and 3 were not supported, and are discussed as follows:

6.7.1 The Influence of Digital Government Ambidexterity on Municipal Information Quality

The following findings measure the direct relationship between Digital Government Ambidexterity and municipal information quality as presented in Table 6.10. Digital Government Ambidexterity (exploitative incremental digital innovation and explorative radical digital innovation) has an effect on municipal information quality (information usability, information readability, information relevance, information trustworthiness and information completeness). In the discussion of hypotheses statements, Research Objective 1 and Research Objective 2 are also addressed.

Research Objective 1

> To establish the influence of exploitative incremental digital innovation on municipal information quality.

Research Objective 2

To establish the influence of explorative radical digital innovation on municipal information quality.

Hypotheses 1 and *Hypotheses 2*

H_o1: *Exploitative incremental digital innovation does not positively influence municipal information quality.*

H_a1: *Exploitative incremental digital innovation positively influences municipal information quality.*

H_o2: *Explorative radical digital innovation does not positively influence municipal information quality.*

H_a2: *Explorative radical digital innovation positively influences municipal information quality.*

From the results obtained, it was established that all factors had positive regression coefficient values, and p-values were also statistically significant ($p<0.05$). Exploitative incremental digital innovation and explorative radical innovation were found to have an effect on information completeness (**H1a** and **H2a**), an observation consistent with Marie, Antonette, Loren, and Ruel (2015); Zaidi, (2017); Fladvad, Baer, and Lindkvist, (2019). Exploitative incremental digital innovation was found to exert significant influence on information completeness among municipalities. Further, it was also found that explorative radical digital innovation influences information completeness (Gieske, George, et al., 2019). This suggest that information completeness in any organisation may only occur if ambidextrous digital innovation (incremental and radical) takes place (Hinings et al., 2018; Fladvad et al., 2019).

The status quo may be attained if the digital government platform provides up to date information, and may enable citizens to complete tasks through accessing various forms, getting them completed and uploaded online (Marie et al., 2015). Similarly, this relates to an interactive digital government platform, where citizens may transact online, which may be achieved through radical digital innovation. To this end, there is a likelihood that information completeness can be achieved through exploitative and explorative digital innovation (Serrano-Cinca and Muñoz-Soro, 2018; Verkijika and De Wet, 2018; Hinings, Gegenhuber, and Greenwood, 2018).

Exploitative incremental digital innovation and explorative radical innovation were found to have an effect on information readability (**H1b** and **H2b**), an observation consistent with Miraz, Ali, and Excell (2017); Zaidi (2017). Exploitative incremental digital innovation was found to

have significant influence on information readability among municipalities. Further, it was found that explorative radical digital innovation influenced information readability (Miraz et al., 2017; Nowacki and Monk, 2020). Information readability may only occur if ambidextrous digital innovation (incremental and radical) takes place (Peng, 2019).

This may occur if the digital government platform provides citizens with clear, consistence and readable information in terms of style and uniformity. For example, radical digital innovation may be realised through digital government platforms which enable citizens to access information that is presented in their preferred language. To this end, it may be suggested that the two seemingly contradicting forces (exploitative and explorative innovation) need to be treated as complementary forces. This is because of the sequential order in which digital innovation takes place, for instance, for the digital government platform to offer language options to citizens, it should firstly satify exploitative characteristcs such as clear information presentation, consistent information in terms of style and uniformity (Boukamel and Emery, 2017; Miraz et al., 2017). Thus, information readability may be achieved through ambidextrous digital innovation.

The findings in this study also showed that exploitative incremental digital innovation and explorative radical innovation have an influence on information relevance (**H1c** and **H2c**). While previous literature indicates that information relevance through digital technologies is important in creating interactivity, this seems to be eluding many municipalities from developing countries (Kim and Kuljis, 2014; De Vries, Bekkers, and Tummers, 2016; Verkijika and De Wet, 2018). In the context of municipalities, it can further be argued that information relevance influences citizens' decision towards interactivity with digital government platforms.

Having only digital government platform has been seen as not adequate especially if the factor on innovativeness is missing, hence digital innovation is touted to be influential towards enhancing interactivity (Hinings et al., 2018). Ambidextrous digital innovation can create a complementarity force between a non-interactive and interactive digital government platform. Rather than citizens only receiving information from the service provider, (one-way communication) however through radical digital innovation, a two-way communication platform may be created which enables citizens to download and upload information online. Thus, ambidextrous digital innovation can influence information relevance.

Hypotheses (**H1d** and **H2d**), which focused on the effect of exploitative incremental digital innovation and explorative radical digital innovation on information trustworthiness were supported in this study. Serrano-Cinca and Muñoz-Soro (2018) and Verkijika and De Wet (2018) revealed that citizens' perceived information trust is possibly based on protection of

personal information, and that may include among other things, securing and limiting access of personal information to authorised people.

This means most citizens would likely prefer to be associated with digital government platforms that are secured, where there are less concerns of access of information by unauthorised persons. In addition, Castelnovo and Sorrentino (2018) also indicate that through digital innovation interactivity may be promoted. The promotion of interactivity may only be possible when citizens find it safe to use the digital platform. Worse still, if the digital government platform does not enable citizens to access their personal information, there may be lack of trust. In addition, indicative of radical digital innovation, the web page should be secured with SSL Certification is installed to the Web server to secure sessions with browsers and the standard http should change to https. However, digital government platform security concerns may drive citizens away from interacting with the platform (Weerakkody et al., 2016; Mahmood et al., 2018). Nevertheless, based on the discussion above, it is evident that ambidextrous digital innovation affect information trustworthiness particularly in municipalities from the developing countries.

In relation to the following hypotheses, (**H1e** and **H2e**), the study outcomes indicate that exploitative incremental digital innovation and explorative radical digital innovation influence information usability and these findings resonates with those of (Tsai, Lin, and Chung, 2016). Drawing from the aforementioned statement, exploitative incremental innovation involves alteration of existing digital technologies making them more appreciated by users, who are citizens. This may be achieved through a digital government platform which makes it easy for citizens to follow links. Thus, exploitative incremental digital innovation was found to exert significant influence on information usability.

Further, explorative radical digital innovation has also been found to influence information usability (Cannaerts, Segers, and Henderickx, 2016; De Vries et al., 2016; Gastaldi, Appio, Corso, and Pistorio, 2018). Equally, a good digital government platform should be redesigned around the needs of customers, who are citizens in this study. Through radical digital innovation, information should be tailor made for citizens to easily interact with the platform. In consensus, (Gastaldi et al., 2018) hold the view that exploitative and explorative focuses on digital innovative activities that organisations may pursue in order to simplify the use of existing and new digital technologies. Further, this may bring innovativeness through making them interactive. It is evident that Digital Government Ambidexterity affect information usability.

6.7.2 Mediation Effects of Municipal Information Quality

This section focused on establishing the mediation effect of municipal information quality between the relationship of Digital Government Ambidexterity and public value as presented in Table 6.11. Digital Government Ambidexterity (exploitative incremental digital innovation and explorative radical digital innovation) mediated by information quality (information usability, information readability, information relevance, information trustworthiness and information completeness) has an effect on public value (social benefits, personal utility, participatory democracy and perceived security). In the discussion of hypotheses statements, Objective 3 was also addressed.

Research Objective 3

> To establish the mediating influence of municipal information quality on the relationship between Digital Government Ambidexterity and public value.

Hypotheses 3

H_o3: *Information completeness does not positively affect the relationship between exploitative incremental digital innovation and public value.*

H_a3: *Information completeness positively affects the relationship between exploitative incremental digital innovation and public value.*

The mediation analysis was conducted with 500 bootstraps samples using Smart-PLS by Ringle, Wende and Becker (2015). Hypotheses **H3** and its sub-hypotheses, **a**, **b**, **c** and **d**, it was established that they all had positive regression coefficient values. All p-values were statistically significant ($p<0.05$) meaning that information completeness satisfactorily mediates the relationship between exploitative incremental digital innovation and each of the public value factors namely; social benefits, participatory democracy, perceived security and personal benefits. These results corroborates with findings from studies by Zaidi (2017) and Fladvad, Baer, and Lindkvist (2019) who argue that through exploitative incremental digital innovation, citizens may access accurate and up to date information from these digital government platforms. This may suggest that sufficient information obtained through digital government platform possibly enable citizens complete their transactions.

Hypotheses 4

H_o4: *Information completeness does not positively affect the relationship between explorative radical digital innovation and public value.*

H_a4: *Information completeness positively affects the relationship between explorative radical digital innovation and public value.*

Hypotheses **H4** and its sub-hypotheses, **a**, **b**, **c** and **d**, all had a positive regression coefficient value. Further, all the p-values were statistically significant ($p<0.05$) meaning that information completeness satisfactorily mediates the relationship between explorative radical digital innovation and each of the public value factors namely; social benefits, participatory democracy, perceived security and personal benefits. These findings resonates with those of Cannaerts et al. (2016) who found that digital innovation leveraged through digital technologies tends to provide efficiency and promotes participation thereby delivering public value. Similarly, Hinings et al. (2018) argue that radical digital innovation lead to new forms of doing things in an organisations. For instance, this may relate to the digital government platform which enables citizens' interactive opportunities through a well, efficient and complete system (Ferlie et al., 2019). Thus more ambidextrous digital innovation help resolve tensions between exploitative incremental innovation and explorative radical innovation, and as such Digital Government Ambidexterity in municipalities deserves more attention if these organisations are to realise the impact of Transformational Government.

Hypotheses 5:

H_o5: *Information readability does not positively affect the relationship between exploitative incremental digital innovation and public value.*

H_a5: *Information readability positively affects the relationship between exploitative incremental digital innovation and public value.*

The findings from this study also show that hypotheses **H5** and its sub-hypotheses, **a**, **b** and **d**, had positive regression coefficient values. All the corresponding p-values were statistically significant ($p<0.05$) meaning that information readability satisfactorily mediates the relationship between exploitative incremental digital innovation and each of the public value constructs namely; social benefits, participatory democracy, perceived security and personal benefits. Regarding sub hypotheses **H5c** which had a negative regression coefficient value, its p-value was statistically significant. The findings concur with that of Smith and Umans (2015) who highlighted that most public sector organisations tend to exhibit only exploitative digital innovation, a factor that might result in less digital government platform utilisation. This may suggest that most municipal digital government platforms are merely informative, one way communication system lacking on interactivity. However, this may point to the need for radical digital innovation in the context of municipalities, particularly from developing countries.

Hypotheses 6:

H_o6: *Information readability does not positively affect the relationship between explorative radical digital innovation and public value.*

H_a6: *Information readability positively affects the relationship between explorative radical digital innovation and public value.*

Hypotheses **H6** and its sub-hypotheses **a**, **b**, **c** and **d**, which sought to determine the mediation effect (information readability) between explorative radical digital innovation and each of the public value factors namely; social benefits, participatory democracy, perceived security and personal benefits were supported, all had positive regression coefficient values and statistically significant. Hypotheses **H6c** had an adverse regression coefficient value, but its p-value was statistically significant. Radical digital innovation enhances the usage of digital technologies (Liang et al., 2019). The digital government platforms may be tailor-made based on user perspective, for instance, the provision of language options. These findings cohere with those of Nhema (2016) and Verkijika and De Wet (2018) who suggest that to achieve digital innovation, digital government platforms can be tailored to meet citizens' expectations through language options as that can promote usage, particularly in the public sector. However, it is evident that lack of information readability affects the relationship between digital innovation and public value. Based on the aforementioned discussion relating to **H5** and **H6**, it may be suggested that ambidextrous digital innovation is significant especially when competing forces of a non-interactive and an interactive digital platforms are treated as complementary forces.

Hypotheses 7

H_o7: *Information relevance does not positively affect the relationship between exploitative incremental digital innovation and public value.*

H_a7: *Information relevance positively affects the relationship between exploitative incremental digital innovation and public value.*

In support of **H7** and its sub-hypotheses **a**, **b**, **c** and **d**, the findings in this study indicate that information relevance satisfactorily mediates the relationship between exploitative incremental digital innovation and each of the public value indicators. There are positive regression coeffient values and the corresponding p-values which are statistically significant ($p<0.05$). This means all hypotheses were supported. Weerakkody et al. (2016) and Mahmood et al. (2018) suggest that for organizational digital technologies to be deemed relevant it should have useful information as perceived by citizens. Thus, there is need for these digital

government platforms to exhibit information which could be easily understood, enabling citizens to attach some value to it. This suggests that, information relevance may citizens promote citizen-municipal interactivity.

Hypotheses 8

H_o8: *Information relevance does not positively affect the relationship between explorative radical digital innovation and public value.*

H_a8: *Information relevance positively affects the relationship between explorative radical digital innovation and public value.*

The findings from this study also show that hypotheses **H8** and its sub-hypotheses **a**, **b**, **c** and **d**, had positive regression coefficient values. The corresponding p-values were also found to be statistically significant ($p<0.05$) meaning that information relevance satisfactorily mediates the relationship between explorative radical digital innovation and public value. All hypotheses were supported. The absence of information relevance may lead to a non-interactive digital government platform (Kim and Kuljis, 2014; Verkijika and De Wet, 2018). Thus, for the platform to be interactive, it may be suggested that uploaded information should be of use from the users' perspective, hence the need for municipalities to innovatively tailor-make their systems to satisfactorily meet citizens' expectations. For instance, these digital government platforms should be improved such that they are used for an array of activities which citizens will perceive relevant. This could possibly include integrating social media platforms to digital government platform. This point to calls for municipalities to embrace ambidextrous digital innovations in their endeavour to realise the impact of Transformational Government.

Hypotheses 9

H_o9: *Information trustworthiness does not positively affect the relationship between exploitative incremental digital innovation and public value.*

H_a9: *Information trustworthiness positively affects the relationship between exploitative incremental digital innovation and public value.*

Hypotheses **H9** and its sub-hypotheses particularly **a, b**, were not supported. Further, hypotheses **H9b** had a negative regression coefficient value. These findings concur with that of Serrano-Cinca and Muñoz-Soro, (2018) who indicate that there is lack of information trust from digital government platforms particularly from the public sector. For instance, citizens' sometimes receive statements or bills with distorted information, values or figures that may not be of help for decision making (Jonga, 2016). Further, indications are that there is no platform that promotes municipal-citizen interactivity, a factor that may point to a lack of

incremental digital innovation on the part of municipalities. Nevertheless, sub-hypotheses **c** and **d** with positive regression coefficient values, were supported and mediated the relationship between exploitative incremental digital innovation and public value. These finding resonates with that of Barrutia and Echebarria (2019) who highlighted that citizens may only want to interact with a digital platform which is perceived trustworthy and secure. For instance, citizens would possibly trust a system where they can access their information through logging in and out.

Hypotheses 10

H_o10: *Information trustworthiness does not positively affect the relationship between explorative radical digital innovation and public value.*

H_a10: *Information trustworthiness positively affects the relationship between explorative radical digital innovation and public value.*

The findings from this study show that Hypotheses **H10** and its sub-hypotheses particularly **a**, **b**, were not supported. Further **H10b** had a negative regression coefficient. These findings, just like under **H9** seem not to satisfactorily mediate the relationship between explorative radical digital innovation and public value. This may point to lack of information trustworthiness from digital government platforms particularly from municipalities (Porumbescu, 2017; Verkijika and De Wet, 2018). Further, citizens may not be willing to interact with a digital government platform which does not enable them to securely log in and out of their portals. As such, digital government platforms ordinarily tend to create a barrier between organisations and its inhabitants (Acosta-vargas, Luján-mora, and Salvador-ullauri, 2017; Karkin, Yavuz, Cubuk, and Golukcetin, 2018; Barrutia and Echebarria, 2019). All the same, sub-hypotheses **c** and **d** with positive regression coefficient values were supported, and mediate the relationship between explorative radical innovation and public value. These finding reverberates with that of Mahmood et al. (2018) and Barrutia and Echebarria (2019) who highlighted that for municipal-citizen interactivity to take place, digital government platforms must be perceived secure towards promoting information trustworthiness. This may point to the need for municipalities to secure digital government platforms through SSL Certification installation to the Web server so as to secure sessions, suggesting that online interactivity can be promoted..

Hypotheses 11

H_o11: *Information usability does not positively affect the relationship between exploitative incremental digital innovation and public value.*

H_a11: *Information usability positively affects the relationship between exploitative incremental digital innovation and public value.*

In relation to hypotheses **H11**, its sub-hypotheses **a**, **b**, **c**, **d** were not supported. These findings concur with that of Mawela et al. (2017) and Verkijika and De Wet (2018) who indicate that many digital government platforms from the public sector organisations such as municipalities lacked on information usability. Thus, citizens did not find any value from information on the platform. This may mean that citizens cannot even follow links provided through digital government platforms due to unavailability of sound and informative information. In addition, this may mean that citizens do not find any use of the information accessed through the digital government platforms. Further, this may suggest that the information provided through these digital government platforms may not be of much use to citizens hence rendering it poor with regards to quality. The sub-hypotheses do not satisfactorily mediate the relationship between exploitative incremental digital innovation and public value. This was despite both indicating positive regression coefficient values. This finding concurs with that of Malik, Bhargava, and Chaudhary (2017) and Manoharan et al., (2017) who highlighted that citizens may interact with a digital government platform they find user-friendly. Such a digital government platform would by all means exhibit digital innovation characteristics.

Hypotheses 12

H_o12: *Information usability does not positively affect the relationship between explorative radical digital innovation and public value.*

H_a12: *Information usability positively affects the relationship between explorative radical digital innovation and public value.*

The findings from this study show that **H12** and its sub-hypotheses **a**, **b**, **c**, **d** were not supported, and do not satisfactorily mediate the relationship between explorative radical digital innovation and public value. The results however, showed positive regression coefficient values. These findings are in line with those of Tsai, Lin, and Chung (2016), Berlilana et al., (2017), Gastaldi et al. (2018) and Fladvad et al. (2019) who note that lack of explorative radical digital innovation which focuses on innovative activities that organisations may pursue in order to simplify the use of existing and new digital technologies may lead to non-interactivity between organisations and citizens. Information usability was found not to be statistically significant despite it having positive regression coefficient values. In support of this finding, Verkijika and De Wet (2018) also found that digital government platforms in the context of

Sub-Saharan Africa are characterised by poor usability. Further, these findings concur with those of Malik et al. (2017) and Gieske et al. (2019) who highlighted that citizens may interact with a platform that is customised, making it simple for one to follow links and log in and out. Nonetheless, embracing ambidextrous digital innovation may prove costly but in the long run it may enhance organisational efficiency, building trust, and promoting interactivity between organisations and citizens.

6.7.3 The Influence of Digital Government Ambidexterity on Public Value

In the current study, a test for direct relationship between Digital Government Ambidexterity and public value was conducted as presented in Table 6.12. Digital Government Ambidexterity (exploitative incremental digital innovation and explorative radical digital innovation) has a direct effect on public value (personal utility, perceived security, participatory democracy, and social benefits). In the discussion of hypotheses statements, objective 4 and 5 were met.

Research objective 4

To ascertain the influence of exploitative incremental digital innovation on public value.

Research objective 5:

To determine the influence of explorative radical digital innovation on public value

Hypotheses 13

***H_o13**: Exploitative incremental digital innovation does not positively affect public value.*
***H_a13**: Exploitative incremental digital innovation positively affects public value.*

In assessing hypotheses **H13** and its sub-hypotheses **a**, **b**, **c** and **d**, the results established that all hypotheses had positive regression coefficient values, whereas **H13a**, **H13b** and **H13d** were supported with statistically significant p-values ($p<0.05$). This means exploitative incremental digital innovation influences public value. This is in line with the findings of Parikh and Bhatnagar (2018), Barrutia and Echebarria (2019) and Fladvad et al. (2019) who suggest that continuity of exploitative incremental digital innovation promotes utilisation of municipal digital government platforms, thereby motivating citizens towards realising utility benefits. This may also include influencing citizens towards participating in developmental matters. Hypotheses **H13c** was not supported. This may imply that matters of security are important to citizens at any stage. For instance, citizens would mostly always prefer to access their information form a more secure digital government platform. These findings correspond with

those of Zaidi (2017) and Verkijika and De Wet (2018) who highlighted that part of the reasons why many municipal digital government platforms were not found usable because they lacked security features. This may suggest that, there is need for illuminating calls for municipalities to embrace ambidextrous digital innovation if they are to keep pace with ever changing digital trends towards public value.

Hypotheses 14

***H_o14**: Explorative radical digital innovation does not positively affect public value*
***H_a14**: Explorative radical digital innovation positively affects public value.*

The findings from this study show that, hypotheses **H14** and its sub-hypotheses **a**, **b**, were not supported. More so, hypotheses **H14b** had a negative regression coefficient value. These findings indicate that explorative radical digital innovation does not affect public value. Nonetheless, these findings are contrary to those of Liang et al. (2019) who found that digital innovation does public value. This may point to the need by municipalities to consider matters of ambidextrous digital innovation as a way of promoting municipal-citizen interactivity. Hypotheses **H14c,** and **H14d** were supported, and both had positive regression coefficient values. These findings corroborate with those of Zhao (2017), Trong Tuan (2017), Boukamel and Emery (2017), Verkijika and De Wet (2018), Hinings et al. (2018) and Barrutia and Echebarria (2019) who indicate that explorative radical digital innovation leveraged through digital technologies may promote the much needed public value. For example, this could possibly be attained through improved security features on the digital government platform deemed useful from citizens' perspective. By so doing, this could possibly lead to citizens realising the value derived from utilising municipal digital government platforms.

6.8 Chapter Summary

There are a number of highlighted factors in literature which are further confirmed by the findings in this chapter, particularly the public value influencers. The findings in this chapter show that Digital Government Ambidexterity factors (exploitative incremental digital innovation and explorative radical digital innovation) significantly influence municipal information quality. The main factors identifiable with municipal information quality including; information usability, information readability, information relevance, information trustworthiness and information completeness present the major contribution of the findings.

The direct relationship of Digital Government Ambidexterity showed to have an impact on municipal information quality (**H1a**, **H1b**, **H1c**, **H1d**, **H1e**, **H2a**, **H2b**, **H2c**, **H2d** and **H2e**). Digital Government Ambidexterity element (exploitative incremental digital innovation) showed

to have a strong influence on the following municipal information quality factors (information readability and information relevance. Whereas, another Digital Government Ambidexterity element (explorative radical digital innovation) also showed a strong impact on municipal information quality factors (information completeness, information trustworthiness and information usability).To municipal agencies and researchers, this finding provides them with necessary knowledge and understanding as to how the two seemingly contradictory elements of Digital Government Ambidexterity and sound digital government policy implementation can.affect different municipal information quality factors.

The study's finding also revealed that municipal information quality (information completeness, information readability, information relevance) had strong mediation effect whereas information trustworthiness had a partial mediation effect between Digital Government Ambidexterity and public value. information usability had no mediation effect between Digital Government Ambidexterity and public value. However, given the mediation effect by some constructs, it led to the development of MunINFORQUAL model, considered essential for municipalities towards promoting public value. Particularly, the embracement of the model in municipalities from developing countries is seen as important towards creating citizen centered organisations.

The model was further tested for a direct relationship between Digital Government Ambidexterity and public value (**H13a**, **H13b**, **H13c**, **H13d**, **H14a**, **H14b**, **H14c** and **H14d**). Of the 8 hypotheses tested, 5 were statistically significant indicating a possibly weak relationship, whereas 3 were not statistically significant.

CHAPTER SEVEN

EVALUATION OF THE FRAMEWORK

7.1 Introduction

This chapter provides an overall summary of the proposed model based on study findings, focusing on the mediating effect of munipal information quality between Digital Government Ambidexterity and public value. Notably, these latent variables were statistically tested. Secondly, the focus was on the moderating role of digital government policy implementation between Digital Government Ambidexterity and municipal information quality. Further, to complete the model validation exercise, focus group discussions were conducted, and this was done in order to validate the moderating role of digital government policy implementation which could not be statistically tested.

7.2 Revisiting the Research Aim

The study set out to investigate the area of Organisational Ambidexterity on Transformational Government within municipalities. Specifically, the study focused on testing the influence of Digital Government Ambidexterity on municipal information quality for public value. This framework was further moderated by digital government policy implementation. The fundamental problem which the current study focused on, was the need for conceptual clarity on how digital innovations in municipalities from developing nations may enhance information quality for the creation of public value. This study supported the call by Ayantunji, (2016); Kayisire and Wei, (2016); Osei-Kojo, (2017); Verkijika and De Wet, (2018), who bemoaned that there has been relatively low utilisation of digital government platforms in the context of developing countries. This has prompted the current study to investigate the influence of Digital Government Ambidexterity on municipal information quality suggesting that this could enhance public value.

In addition, this study also investigated the concept of digital government policy implementation so as to bring to light if and how it influences digital innovations towards the realisation of municipal information quality particularly in the context of developing nations. This illuminating call is made by (Lupilya and Hun, 2015; Tsokota, 2017).Given the ubiquitous of digital technologies, many governments from the developing world are faced with accelerated demands from citizens to become Transformational Government. With that in mind, this study also aligned itself to calls for municipalities to innovate in this dynamic environment (Smith and Umans, 2015; Boukamel and Emery, 2017; Tuan, 2017; Barrutia and

Echebarria, 2019; Karkin et al., 2018; Liang et al., 2019). Particularly, the focus was on the capacity to pursue digital innovations through integrating exploitative incremental digital innovation and explorative radical digital innovation. This study supports the call for municipalities to embrace the concept of dynamic capabilities which undertakes that succesful organisations are able to demonstrate timeliness and responsiveness to citizens' dynamic demands for public value (Boukamel and Emery, 2017; Roengtam et al., 2017).

Furthermore, the current study was also rooted in the ICT domain with the view of investigating how exploitative incremental digital innovation and explorative radical digital innovation can alter digital government platform artifacts, which are regarded as the proxy to Transformational Government. In view of these digital government platform artifacts alterations, D and M's IS Success model was deemed appropriate. This is because the IS Success model also focuses on improving digital government platform artifacts which are regarded necessary to the realisation of municipal information quality (Malik et al., 2017; Verkijika and De Wet, 2018; Butt et al., 2019). The realisation of sound municipal information quality through employing integrated digital innovation sought to create public values. It is through public value that a democratic space for enhancing collective initiatives between governments and citizens is created (Turkel and Turkel, 2016). The moment digital government platforms address citizens' needs at large, and therefore make citizens' co-creators of digital government programs, public value would be realised (Fukumoto and Bozeman, 2019).

7.2.1 Reflection on unsupported Hypotheses

All latent variables through their manifest variables were statistically tested for direct and indirect relationship. Of the 40 indirect hypotheses tested relating to the relationship between Digital Government Ambidexterity-Municipal Information Quality-Public Value, 28 were supported whilst 12 were not supported. Further, 8 hypotheses relating to a direct relationship between Digital Government Ambidexterity and Public Value were tested, 5 were supported whereas 3 were not supported. The following Table 7.1, and Figure 7.1 show a summary of unsupported hypotheses:

Table 7.1: Unsupported Indirect and direct relationship hypotheses

Indirect Relationship		
Hypotheses	**Constructs**	**Decision**
H9a	Exploitative Incremental-Trustworthiness-Social benefits	Not supported
H9b	Exploitative Incremental-Trustworthiness-Participatory democracy	Not supported
H10a	Explorative Radical-Trustworthiness-Social benefits	Not supported
H10b	Explorative Radical-Trustworthiness- Participatory democracy	Not supported
H11a	Exploitative Incremental-Usability-Social benefits	Not supported
H11b	Exploitative Incremental-Usability-Participatory democracy	Not supported
H11c	Exploitative Incremental-Usability-Perceived security	Not supported
H11d	Exploitative Incremental-Usability-Personal utility	Not supported
H12a	Explorative Radical-Usability-Social benefits	Not supported
H12b	Explorative Radical-Usability-Participatory democracy	Not supported
H12c	Explorative Radical-Usability-Perceived security	Not supported
H12d	Explorative Radical-Usability-Personal utility	Not supported
Direct Relationship		
H13c	Exploitative Incremental-Perceived security	Not supported
H14a	Explorative Radical-Social benefits	Not supported
H14b	Explorative Radical-Participatory democracy	Not supported

Municipal information quality construct (information usability) was found not to have a mediation effect between Digital Government Ambidexterity constructs (exploitative incremental digital innovation and explorative radical digital innovation) and public value factors (personal utlity, perceived security, participatory democracy and social benefits, **H11a**,**H11b**, **H11c**, **H11d**, **H12a**, **H12b**, **H12c** and **H12d**. This finding corroborates with outcomes from studies by Malik et al. (2017) and Verkijika and De Wet (2018), who observed that digital government platforms had serious drawbacks, suggesting that this could be part of the reasons why citizens do not utilise the platform. From the citizens' perspective, the realisation was that information obtained through digital government platforms lacked on the provision of simple links to follow when one was navigating, information was not customised and a lack of information clarity. Further, from the citizens' perspective, the information obtained from those digital government platforms was found to be of less use hence making it poor in terms of quality. This may mean citizens could not find any useful information pertaining to weather forecast or developmental projects taking place within the municipalities. Such a case deprives citizens' of public values. Municipal information quality construct

(information trustworthiness) had a partial mediation between the relationship of exploitative incremental digital innovation and explorative radical digital innovation with some public value constructs (social benefits and perceived democracy), **H9a**, **H9b**, **H10a** and **H10b**. These hypotheses had no mediation effect.

This possibly suggests that digital government platforms had serious deficiencies relating to matters of security. Odinarily, citizens would not want to interact with a platform which lacks on privacy and information security. Such a platform would score less on trustworthiness. This observation is consistent with that of Porumbescu (2017) and Zaidi (2017) where information trustworthiness was found not to be statistically significant in the context of public sector. With regard to a direct relationship between exploitative incremental digital innovation and perceived security, explorative radical digital innovation and social benefits, and explorative radical digital innovation and perceived democracy, the hypotheses **H13c**, **H14a** and **H14b** were also not supported. This implies that the direct relationship was not necessary, since the municipal's focus was on realising Transformational Government. Further, such a relationship could only be valid if mediated by municipal information quality constructs.

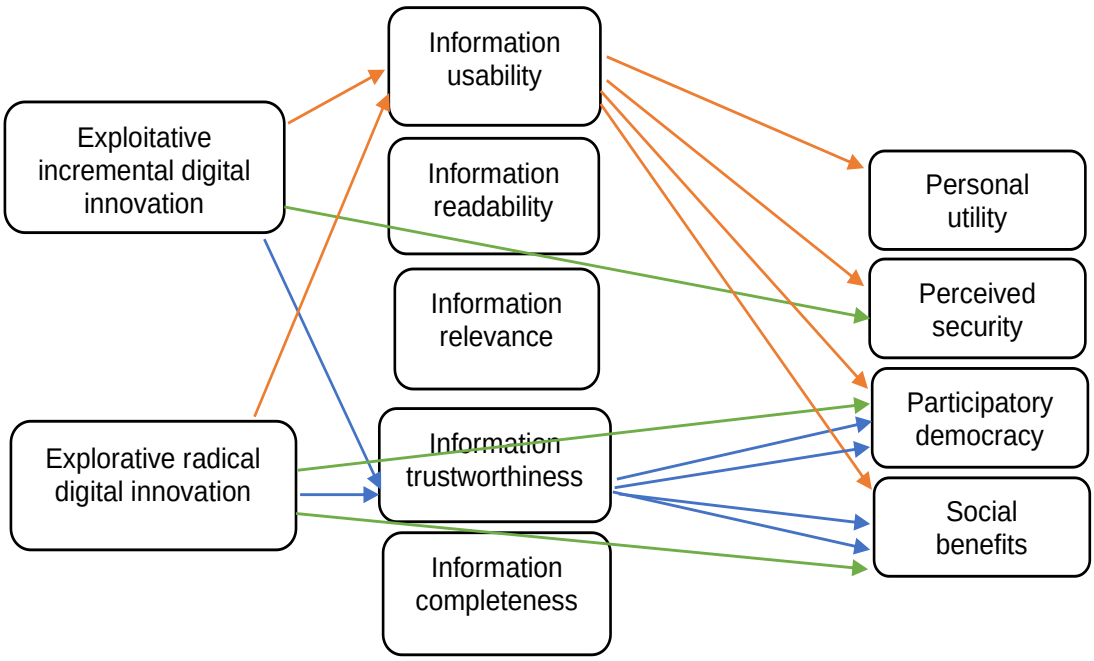

Figure 7.1: MunINFORQUAL framework based on unsupported hypotheses.

Note: Hypotheses not supported. Orange arrows represent no mediation; blue arrows represent partial mediation and green arrows represent the absence of a direct relationship between items.

7.3 Synthesis of Findings

Figure 7.2 presents the framework based on supported hypotheses. Integrated factors of Digital Government Ambidexterity (exploitative incremental digital innovation and explorative radical digital innovation) and municipal information quality constructs (information usability, information readability, information relevance, information trustworthiness and information completeness) were all supported, (**H1a** to **H1e** and **H2a** to **H2e**). These findings suggest that to realise municipal information quality for public value, integrated exploitative incremental digital innovation and explorative radical digital innovation is necessary. This appears to support literature which generally advances that requisite level of digital innovation is necessary for municipal information quality, and this includes both improvements on existing digital platforms and introduction of new ones such as a new software (Karkin et al., 2018; Björses, 2019). Further, digital innovation on digital government platforms may lead to sound information quality towards public value.

Given these findings, the mediation effect test was undertaken to gain further insight into the role of Digital Government Ambidexterity (exploitative incremental digital innovation and explorative radical digital innovations). The results presented in Figure 7.2 show that municipal information quality constructs, information readability, information relevance and information completeness (**H3a** to **H3d**, **H4a** to **H4d**, **H5a** to **H5d**, **H6a** to **H6d**, **H7a** to **H7d**, and **H8a** to **H8d**), fully mediated the relationship between integrated factors of Digital Government Ambidexterity and all public value constructs. Of interest, information readability a new proposed factor, has also enhanced our understanding of just how different qualities of information influence public value. However, this further suggests that to attain Transformational Government, municipal information quality become a prerequisite for the creation of public values. In this sense, to promote citizen-municipal interaction through digital technologies, there is need for municipalites to embrace digital innovations. The results of the mediation effect test are consistent with the work of Zaidi (2017) and Gil-Garcia et al. (2018) who contend that information quality is necessary for the creation of public value. Further, while the current findings concur with those by Zaidi (2017) and Gil-Garcia et al. (2018) on the mediation effect of information completeness, Marie et al. (2015) in their study, information completeness construct was found not to be a significant predictor of travel intention. This may suggest that different constructs of information quality may present different outcomes in different contexts.

Further, municipal information quality construct (information trustworthiness) **H9c**, **H9d**, **H10c** and **H10d**, partially mediated the relationship between Digital Government Ambidexterity

constructs and some public value factors (personal utility and perceived security). This finding concurs with that of Fehrenbacher (2016) and Zaidi (2017), who found a positive relationship between trustworthiness and perceived effectiveness. Citizens would prefer to associate with a digital government platform which is secure, free from information access by unauthorised persons. Hypotheses for direct relationship between Digital Government Ambidexterity constructs and public value factors (**H13a**, **H13b**, **H13d**, **H14c** and **H14d**) were supported. Despite these hypotheses being supported, their relationship had low regression coefficients, suggesting that the relationship was not necessary. Notably, the most preferably route would be through the mediation effect, since it was observed that the level of public value increases with the introduction of mediating factors adopted by organisations.This finding support the call for municipalities to embrace digital innovations towards public value particularly in the context of developing countries (Boukamel and Emery, 2017; Björses, 2019).

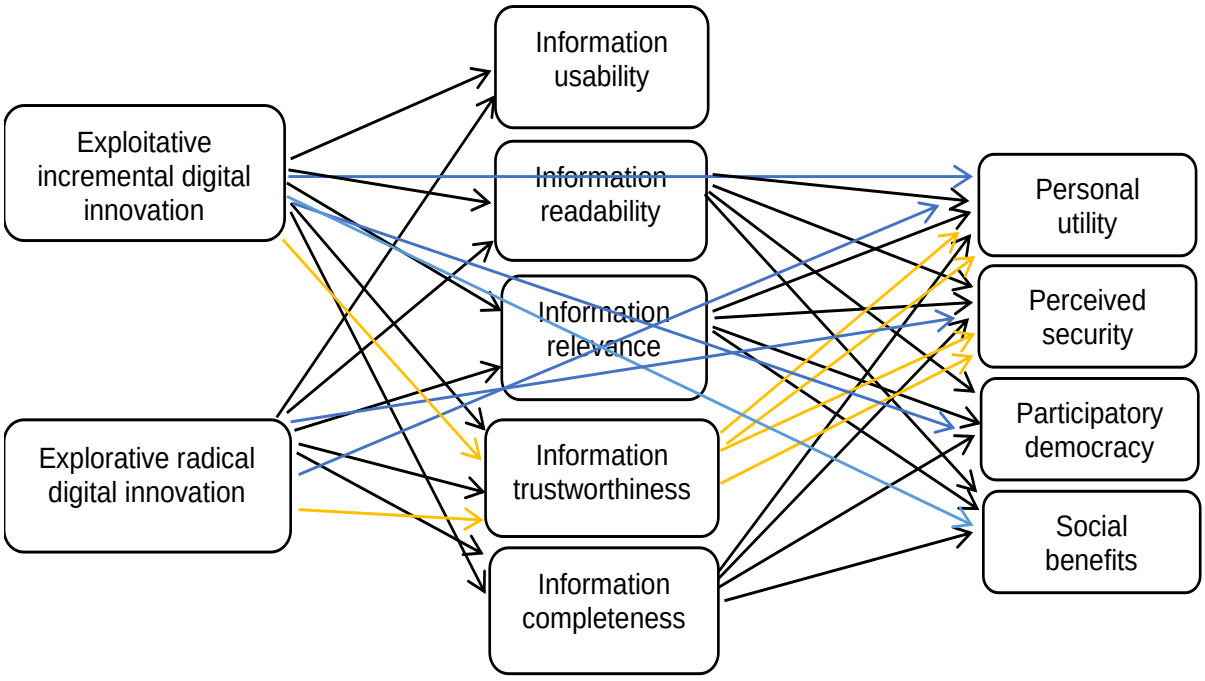

Figure 7.2: MunINFORQUAL framework based on supported hypotheses.

Note: Hypotheses supported. Black arrows represent full mediation; orange arrows represent partial mediation and blue arrows represent a direct relationship between a predictor and an outcome.

7.4 Validation of the Municipal Information Quality (MunINFORQUAL) Model

Given the growing body of literature that recognises poor and low standards of digital government platforms and information quality in municipalities, partly due to factors associated to lack of digital innovativeness, the current study sought to propose a municipal information quality model that may be applicable to municipalities especially from the developing countries. It is suggested that this form of digital innovation should influence the quality of information that creates public value. The drive behind the model is the growing calls for municipalities to realise the impact of Transformational Government (Choi and Chandler, 2015; Mawela, 2015; Nhema, 2016; Teng-Calleja et al., 2017; Lips, 2017; Kamaruddin and MdNoor, 2017; Roengtam, Nurmandi, Almarez, and Kholid, 2017; Alshetewi, Alturise, and Karim, 2018).

Further, from extant literature suggestions are that different ideas as to what could be the cause of apathy towards embracing digital technologies in the public sector (Ayantunji, 2016; Kayisire and Wei, 2016; Silas Formunyuy Verkijika and De Wet, 2018). For instance, Verkijika and De Wet (2018) discussed extensively about the usability of digital government platforms in the context of Sub-Saharan Africa. The major findings from the study being that most of the public sectors' digital government platforms were found not usable. Further, studies which focused on digital technologies usage were predominantly generalised to the public sectors' perspective, and thus paid less attention particulary to municipalities. Municipalities are quasi-government organisations with the latitude and power to innovate and transform their systems with somewhat moderate interference from the central governments. Hence the need to solely focus on them. Further, they are regarded to be at the forefront of any developmental agenda in any nation.

7.4.1 The Validation Process of the Model

Table 7.2a and 7.2b show the effect size as measured by Cohen's (f^2) and Muijs (2004) between Digital Government Ambidexterity and Municipal information quality. Whereas Table 7.3a and 7.3b present the effect size between Municipal information quality and Public value. The model of hypothesised relationship was validated using Partial-Least Squares path modelling (PLSM). In (PLSM), two issues are tested i.e. the measurement model and the structural model. Reliability and validity (convergent and discriminant) tests in assessing the measurement (outer) model. Further, the structural (inner) model was tested for its predictive power and significance of the proposed relationship. The coefficient of determination ($\mathbf{R^2}$) represents the extent to which predictor variables account for the variance in endogenous latent variables, and regression/path (beta coefficient /estimates) reflect the strength of a

relationship between a predictor and outcome variable. The strength of the estimated relationships was assessed using Cohen's (f^2) and beta coefficients for effect size test (Muijs, 2004; Cohen, Manion and Morrison, 2011). This is a statistical concept that measures the strength of the relationship between two variables on a numeric scale. The adoption of Cohen's (f^2) effect size test and beta coefficients was intended to complement p-values as indicators of significance of statistical relationships. Cohen et al. (2011) state that the use of statistical significance (p) values alone is strongly not advisable. In addition, Cohen et al. (2011) and Field (2015) state that in establishing an acceptable outcome in the determination of the effect size, p-values are better used together with coefficients of determination and beta weightings. However, the reason associated to the discouragement of the use of statistical significance alone, is that it depends on both the sample size and coefficients.

To interpret the coefficients of determination **(R^2)** values for endogenous unobserved variables in the inner path, the following guidelines were suggested; 0.67 as substantial, 0.33 moderate and 0.19 as weak (Hair, et al., 2016; Cohen et al., 2011; Henseler et al., 2016). Whereas, the Cohen's effect size (f^2) values were interpreted as follows; 0.02 small effect, 0.15 medium effect and 0.35 large effect, and for beta weightings as 0 - 0.1 weak effect, 0.1 – 0.3 modest effect, 0.3 – 0.5 moderate effect, greater than 0.5 as strong effect (Chin, 1998; Muijs, 2004; Johari, Yean Tan, and Tjik Zulkarnain, 2018).

The findings of the study indicated that 60.5% of the variance in information completeness, 61.8% of information usability, 48.1% of information readability, 44.7% of information relevance and 55.8% of information trustworthiness were explained by exploitative incremental digital innovation and explorative radical digital innovation. The effect size of constructs were also computed to establish if the exogenous variables have a substantial impact on the endogenous constructs.

Table 7.2a: Digital Government Ambidexterity and Municipal information quality Effect size

Exogenous construct	Endogenous construct	R^2	F^2	Effect size
EIW ERW	Information completeness	0.605	0.153	Medium
EIW ERW	Information usability	0.618	0.162	Medium
EIW ERW	Information readability	0.481	0.093	Small
EIW ERW	Information relevance	0.447	0.081	Small
EIW ERW	Information trustworthiness	0.558	0.126	Small

Notes: EIW=Exploitative Incremental Web Portal, ERW=Explorative Radical Web Portal.

Table 7.2b: Digital Government Ambidexterity and Municipal information quality Effect Size

Paths relationships	Beta coefficients	P-value	Effect size
EIW - ICP ERW - ICP	0.398 0.438	0.000 0.000	Moderate Moderate
EIW - IUS ERW - IUS	0.392 0.452	0.000 0.000	Moderate Moderate
EIW - IRD ERW - IRD	0.533 0.201	0.000 0.000	Strong Modest
EIW - IRL ERW - IRL	0.425 0.291	0.000 0.000	Moderate Modest
EIW - ITR ERW - ITR	0.298 0.500	0.000 0.000	Modest Strong

Notes: EIW=Exploitative Incremental Web Portal, ERW=Explorative Radical Web Portal, **:** ICP=Information Completeness, IRD=Information readability, IRL=Information relevance, ITR=Information trustworthiness, IUS=Information Usability.

Hence, the effect size of exploitative incremental digital innovation showed a moderate to strong effect on information completeness, information usability, information readability, information relevance, whereas for information trustworthiness it had a modest effect as illustrated in Table 7.2b. Explorative radical digital innovation on the other hand had a moderate to strong effect on information completeness, information usability and information trustworthiness, whereas it showed modest effect on information readability and information relevance. Beside, all path coefficients of the two independent variables (exploitative incremental digital innovation and explorative radical digital innovation) on municipal information quality were computed, and the results showed that they were all statistically significant.

Further, the results of the study showed that 60.4 % of the variance in social benefits, 64.2% in participatory democracy, 64.9% perceived security and 58.7% of personal utility were explained seperately by information completeness, information usability, information readability, information relevance and information trustworthiness.

Table 7.3a: Municipal information quality and Public value Effect Size

Exogenous construct	Endogenous construct	R^2	F^2	Effect size
Information completeness Information usability Information readability Information relevance Information trustworthiness	Social benefits	0.604	0.153	Medium
Information completeness Information usability Information readability Information relevance Information trustworthiness	Participatory democracy	0.642	0.179	Medium
Information completeness Information usability Information readability Information relevance Information trustworthiness	Perceived security	0.649	0.184	Medium
Information completeness Information usability Information readability Information relevance Information trustworthiness	Personal utility	0.587	0.142	Medium

Table 7.3b: Municipal information quality and Public value Effect Size

Paths relationships	Beta coefficients	P-value	Effect size
ICP-Social benefits	0.326	0.000	Moderate
IUS-Social benefits	0.091	0.000	Weak
IRD-Social benefits	0.140	0.000	Modest
IRL-Social benefits	0.226	0.000	Modest
ITR-Social benefits	0.080	0.000	Weak
ICP-Participatory democracy	0.143	0.000	Modest
IUS-Participatory democracy	0.064	0.000	Weak
IRD-Participatory democracy	0.523	0.000	Strong
IRL-Participatory democracy	0.174	0.000	Modest
ITR-Participatory democracy	-0.004	0.000	Weak
ICP-Perceived security	0.332	0.000	Moderate
IUS-Perceived security	0.075	0.000	Weak
IRD-Perceived security	0.107	0.000	Modest
IRL-Perceived security	0.132	0.000	Modest
ITR-Perceived security	0.426	0.000	Moderate
ICP-Personal utility	0.234	0.000	Modest
IUS-Personal utility	0.119	0.000	Modest
IRD-Personal utility	0.173	0.000	Modest
IRL-Personal utility	0.130	0.000	Modest
ITR-Personal utility	0.229	0.000	Modest

Notes: ICP=Information Completeness, , IRD=Information readability, IRL=Information relevance, ITR=Information trustworthiness, IUS=Information Usability.

The municipal information quality constructs of information completeness, information usability, information readability, information relevance and information trustworthiness showed varied effect sizes on social benefits such as moderate, weak, modest, modest and weak respectively. Information readability showed a strong effect size, information completeness and information relevance had a modest effect size, and information usability, information trustworthiness had a weak effect size on participatory democracy. Information completeness, information trustworthiness indicated moderate effect size, whereas information readability, information relevance showed a modest effect, and information usability indicated a weak effect size on perceived security. All municipal information quality constructs showed a modest effect size on personal utility. In addition, the respective path coefficients of municipal information quality constructs on public value showed that they were statistical significant.

Based on the presentations of findings in Table 7.2b, the results show that exogenous latent variables of exploitative incremental digital innovation and explorative radical digital innovation had a substantial influence on the endogenous constructs of municipal information quality, which are information completeness, information usability, information readability, information relevance and information trustworthiness. Determining through the effect size, the structural model contributed more of the moderate effects, whereas the presentation in Table 7.3b, showed moderate to weak effect size. These results further confirm structural validity of the inner model given the number of modest, moderate and strong beta coefficients (Johari et al., 2018). Further, the predictor variable of Digital Government Ambidexterity showed an integrated effect (exploitative incremental digital innovation and explorative radical digital innovation) on municipal information quality, a significant component to the current study. Based on the results it can be suggested that Digital Government Ambidexterity had a strong predictive power on Transformational Government. Further, it can be inferred that to create public value, municipal information quality driven by Digital Government Ambidexterity become a significant factor since it had mainly moderate to strong effect size, an expression of the siginificance of digital innovations in enhancing municipal information quality.

7.4.2 Validation of Moderation role of Digital Government Policy Implementation.

The research objective number 6 was not statistically tested. When a pilot test for the research instrument was carried out, part of the feedback indicated that it may not be possible for citizens to know if some policies are implemented or not in municipalities, hence the exclusion of the section from the instrument. Instead, in an endeavour to validate the moderation effect

of digital government policy implementation between Digital Government Ambidexterity and municipal information quality, the researcher conducted a focus group discussion with academics and experts in the field of Information and Communications Technologies.

In evaluating the moderating role of digital government policy, two focus group interviews were held. The first focus group consisted of 9 participants and the session lasted about one-and-a-half hours, whereas the second focus group consisted of 4 participants with the session lasting about an hour. All the sessions were facilited by the researcher with the help of the research assistants.

Selection process

The selection of participants was based on their knowledge and expertise pertaining to the problem under study. These are people who would have something to share on the topic and are comfortable talking to the interviewer. In view of this, the researcher used the “Applicability” approach as advocated by (Rabiee, 2004). A snowball sampling technique was used in the identification of participants who had expertise in Information system and business computing. A total of 13 experts drawn from computer science, business computing and information systems were identified and two groups were formed. These participants were drawn from various organisations. With regards to the group one, of the 9 participants, 3 were lecturers teaching courses in the Business Computing, 4 were Webmasters, 1 Computer programmer, and the last one a Data analyst . Group two which consisted of 4 participants, 2 were Computer programmers, 1 Webmaster and the last one a Chief Information officer. Presented in Table 7.4 is a summary of participants’ profiles.

Table 7.4: Summary of participants profiles

Group	Participants	Profile	Organisation
G1	3	Lecturers	Lupane State University x1 National University of Science and Technology x2
	4	Webmasters	Bulawayo municipal x2 Lupane State University x1 National University of Science and Technology x1
	1	Computer programmer	Lupane State University x1
	1	Systems developer	Zimbabwe Revenue Authority x1
G2	2	Computer programmers	Victoria Falls municipal x1 Solusi University x1
	1	Webmaster	Zimbabwe Open University x1
	1	IT Manager	Bulawayo municipal x1
Total	**13**		

Brief introductions were made, and open-ended questionnaires as per the focus group guide (appendix F) were presented to the participants for discussion. Responses were recorded with the help of the research assistants.

In analysing data from the respondents, a thematic approach was used. This involved identification, analysing and describing the patterns in the data (Maguire and Delahunt, 2017; Nyumba, Wilson, Derrick, and Mukherjee, 2018). The following steps were taken; familiarisation with data, theme search from the text, define and name themes, and writing a report.

7.4.2.1 Results

The results of the focus group interview are presented in the following section, and this was done in order to address research objective number 6.

Research objective 6:

To establish the influence of digital government policy implementation on the relationship between Digital Government Ambidexterity and municipal information quality.

7.4.2.2 Focus Group Results

Three themes emerged during data anlysis, and these were digital innovation, information usability and information security.

(a) Digital innovation

Digital innovation is an important factor that may promote digital technologies utilisation through improved information quality. The participants highlighted the need for municipalites to keep pace with digital trajectories in their quest to realise the influence of Transformational Governments. Participants further pointed that digital government policy should outline how digital technology upgrades are to be carried out. Such upgrades are indicative of digital innovations needed to create user-friendly technologies. In particular, participants stated the need for municipalities to develop digital government policies that promote frequent updates of their digital government platforms.

Participants lamented the backwardness and outdated digital government policies in a number of municipalities within Zimbabwe. In the same vein, one participant indicated that unupdated digital government policies can militate against innovation efforts, pointing to the importance of up-to-date digital government policies. Also, the presence of sound digital government policies may be vehicles to which municipalities get to introduce new digital technologies that can enhance information quality for public value. Not only new digital technologies may be introduced, and also constant improvements on existing digital technologies are needed as this may lead to efficiency. Hence this relates to embracing of exploitative incremental digital innovation and explorative radical digital innovation in an endeavour to improve on information quality.

Digital innovation, as highlighted by one of the participants, is a phenomenon that cannot be ignored. We are now living in a world of digital labour; where the digital evolution is providing a much-needed boost to the industry as it presents new and exciting ways of doing business. There is need therefore for municipalities to embrace digital innovation leveraged through ubiquitous digital technologies as that will help promote interactivity thereby becoming citizen-centric organisations. Such a move will enhance information usability, information completeness and information trustworthiness. Nonetheless, the more municipalities become citizen-centric organisations, trust is built along the way and citizens may possibly get more involved on matters to do with the developmental projects. Table 7.5 presents direct quotes from participants in support of the digital innovation theme.

Table 7.5: Digital innovation

Participant	Text	Description	Interpretation
P7	*"Stipulate clear rules and consequences related to the abuse of ICTs. Organisations with ICT policy in place has a competitive advantage as it enables them to move with technological advancement."*	Keeping with digital trends	Digital innovations
P5	*Digital government policies work for the good and help innovation, but the situation on the ground is that they are backward and no longer applicable to the current environment.*	Keep pace with digital trends	Digital Innovations
P6	*"Policies can frustrate new ideas for innovative IT professionals if not updated on time".*	Need for frequent information updates.	Digital innovations
P4	*"Policy helps in the implementation of innovations and enhance efficiency".*	Digital government policy enhances innovations	Digital innovations
P7	*"Any new digital innovations can be brought into the organisation through the implementation of digital government policy".*	Digital government policy is crucial for innovation	Digital innovations
P3	*"Helps the organisation improve its technologies, e.g. graphic designs, and make company logos unique, updating of the information".*	Frequent improvements on digital platforms	Digital innovations
P1	*"They work against digital innovation in organisations because they are now outdated and they can't keep up with the rate of changes in technology".*	Frequent of reviews of digital government policies	Digital innovations
P5	*"Digital government policies when properly crafted can stimulate digital innovation".*	Promote digital innovations	Digital innovations
P8	*"Digital government policies encourage researchers to develop new digital innovations".*	New ideas development	Digital innovations
P3	*"We are now living in the world of digital labour; the digital evolution is providing a much-needed boost to the industry as it presents new and exciting ways to think about and interactions". "It makes managers take ownership of the digital transformation in the organisation"." Big data and digital are intertwined as many use digital platforms to interact with customers in new and innovative ways".*	Need for digital innovation to promote transformation.	Digital innovations
P4	*"Digital government policy allows for innovation to take place".*	Promotes digital innovation.	Digital innovations
P1	*"Digital government policy implementation informs digital innovation because it covers how ICTs should be used, and also provides direction in terms of innovation, especially if the policy is readily accessible by everyone in the organisation".*	Promotes digital innovation.	Digital innovations
P2	*"Digital government policy helps organisations drive digital innovation to higher levels whereby its stakeholders can access up to date information through online services, e.g. online bills payments".*	Need for digital innovations.	Digital innovations
P4	*"Helps to speed up operations, updates on new trends in the industry and maintenance of equipment".*	Need for efficiency and new updates	Digital innovations

(b) Information usability

In an effort to enhance municipal information quality through digital innovation initiatives, participants advised the researcher that sound digital government policy becomes important. For this reason, the participants indicated that digital government policy may aid municipalities in ensuring the proper functions of network systems, and help in development of user-friendly digital systems for end users. Consequently, this would mean the provision of digital government platforms which are customised, enabling cititens to easily follow links, and this relates to the siginificance of digital government policy implementation in promoting municipal information usability. Thus, municipal information usability may be realised through implementing effective exploitative incremental and explorative radical digital innovations on digital government platforms.

Further, participants advised the researcher that digital government policy provides guidelines or rules on how to deal with computerised processes of an organisation in an effort to create efficiency thereby leading to information usability. Further, participants also highlighted that digital government policy implementation may promote the development of networks for engagement with various stakeholders. However, information usability remains a challenge in a number of muncipalites (Verkijika and De Wet, 2018). In concurance with Lupilya and Hun's (2015) view point, it may be suggested that part of information usability failures by municipalities could possibly be associated to lack of digital government policy implementation. Table 7.6 gives direct quotes from participants in relation to the theme, information usability.

Table 7.6: Information usability

Participant	Text	Description	Interpretation
P3	*"Ensure that the organisation network systems function properly, decision making and implementation, constant technology upgrades, helps to develop user friendly systems for end users".*	Promote user friendly environment	Information usability
P6	*"ICT policy is a roadmap on how and why organisations should adopt ICTs, it gives a clear definition of where the organisation wants to go".*	Provides clear direction	Information usability
P1	*"Serves to guide how ICTs should be purchased, used and improved".*	Need for proper handling of digital technologies.	Information usability
P3	*"Govern the use of ICTs within an organisation, empowers management to control and direct the pace of ICT adoption".*	Need for effective digital utilisation	Information usability
P4	*"Digital government policy provides guidelines or rules on how to deal with computerised processes of the organisation".*	Digital technologies usage.	Information usability
P8	*Digital government policies encourage development of networks for engagement between stakeholders. The policies need to be revised."*	Promote linkages	Information usability

Information security

In the information flow process, security becomes an important factor that may promote the quality of municipal information. The participants advised the researcher that digital government policy outlines the information relating to protecting citizens information against unauthorised access and therefore, this would mean that municipal digital government platforms are secured by the installation of SSL Certificate to the Web server to secure sessions with browsers and the standard http changes to https. In addition, the digital technology platform should enable citizens to access their personal information through logging in and out using passwords. However, to secure information on the digital government platforms requires that municipalites carryout digital innovations. It is therefore suggested that digital government policy implementation may influence digital innovation, thereby strengthening information security towards municipal information quality ultimately leading to the creation of public value.

Further, participants pointed out that lack of digital government policy implementation has led to many inefficiency incidents, something which may create a mistrust between municipalities and citizens. It could be suggested that lack of information security may be the reason why there is less utilisation of digital government platforms in the context of municipalites

particularly from developing nations. Table 7.7 shows quotes from participants pertaining the theme on information securiry.

Table 7.7: Information security

Participant	Text	Description	Interpretation
P2	*"Protecting the integrity of data, information, and knowledge, of the company, privacy and security of information".*	Need to protect business information	Information Security
P9	*"Digital government policy ensure that information access is restricted to authorised personnel, implementation of passwords policy to peoples' accounts".*	Need to safeguard citizen information	Information Security
P2	*"Digital innovation helps organisations protect data from access by unauthorised persons"*	Secure information	Information security
P9	*"Lack of policy implementation on ICT systems improvements has led to many fraud incidents",*	Secure individual information	Information security
P1	*"promotes faster communication of information, information security using firewalls and ID cards, upgrading of systems"*	Security	Information security

In view of the aforementioned discussions regarding outcomes from the two focus groups, it can be concluded digital government policy implementation still remain a significant factor towards realisation of Transformational Government initiatives in the context of Zimbabwean public sector, municipalites included. This review carried out through focus group on digital government policy implementation highlights a number of challenges facing Zimbabwe National ICT Policy, and this is in line with findings of other scholary work focusing on challenges associated to implementation systems in the context of the developing nations.issues of information security, information usability and digital innovation are but some of the key factors that need to be considered in attempt to realise the benefits of Transformational Government. there is need for government institutions to revisit their digital government policies with the view of improving and developing them to a state which will make implementation possible.

7.4.2.3 Presentation of Digital Government Policy Implementation Framework

Based on the findings from the focus groups, as shown in Figure 7.4 below is the moderating role of digital government policy implementation between Digital Government Ambidexterity and municipal information quality. Information obtained from focus group interviews was grouped into 3 themes which informed the value of digital government policy implementation. Thus, the current study underscores the need and significance of digital government policy implementation in promoting digital innovation towards information quality.

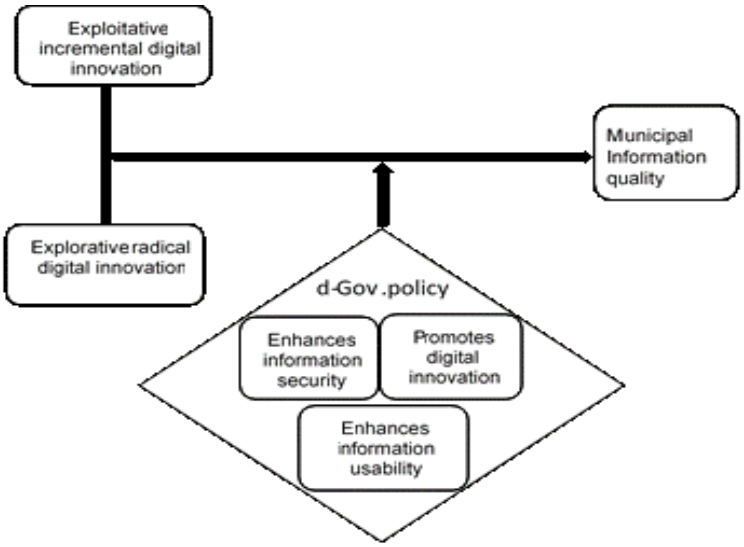

Figure 7.3: Moderated MunINFORQUAL framework based on study findings.

Note: Digital government policy implementation framework was found to be moderating the relationship between Digital Government Ambidexterity and information quality.

7.4.2.4 Presentation of the Final Framework

In section 7.4.1, figure 7.3, the proposed MunINFORQUAL framework was developed based on literature findings on chapter 6. Section 7.4.2 of this chapter further evaluated the framework using focus group interviews to determine its reliability through assessing the moderating role of digital government policy implementation between digital government ambidexterity and municipal information quality. During the evaluation process, one factor (information usability) was excluded since it was found not to be statistically significant as shown in figure 7.4. The modified framework based on PLS-SEM results and suggestions from focus group interviews is presented in figure 7.4.

The development of the MunINFORQUAL model will help policy makers and managers of municipalities in several ways. Firstly, it will aid them from putting their investment on digital technologies to waste. This could be through ignoring citizens' needs which should always take the centre stage with regards to public services delivery. Secondly, the model will make policy makers understand the siginificance digital innovation towards promoting an interactive environment through which citizens become co-creators of public value. Such an environment will enable municipalities benefit from information with regards to policy and budget consultation inputs. Thirdly, managers of municipalities will also understand how information quality pespectives realised through digital government platforms are important, as they may influence citizens' perceptions they hold about municipalities.

However, for the aforementioned benefits to be realised, policy makers and managers of municipalities need to craft and implement digital government policies so as to stimulate digital innovations. The process require that they begin effectively embrace exploitative incremental digital innovation and subsequently explorative radical digital innovation. This kind of move will enable managers reduce budgetary constraints. Ultimately, this will stimulate digital government platform utilisation amongst citizens thereby creating public value.

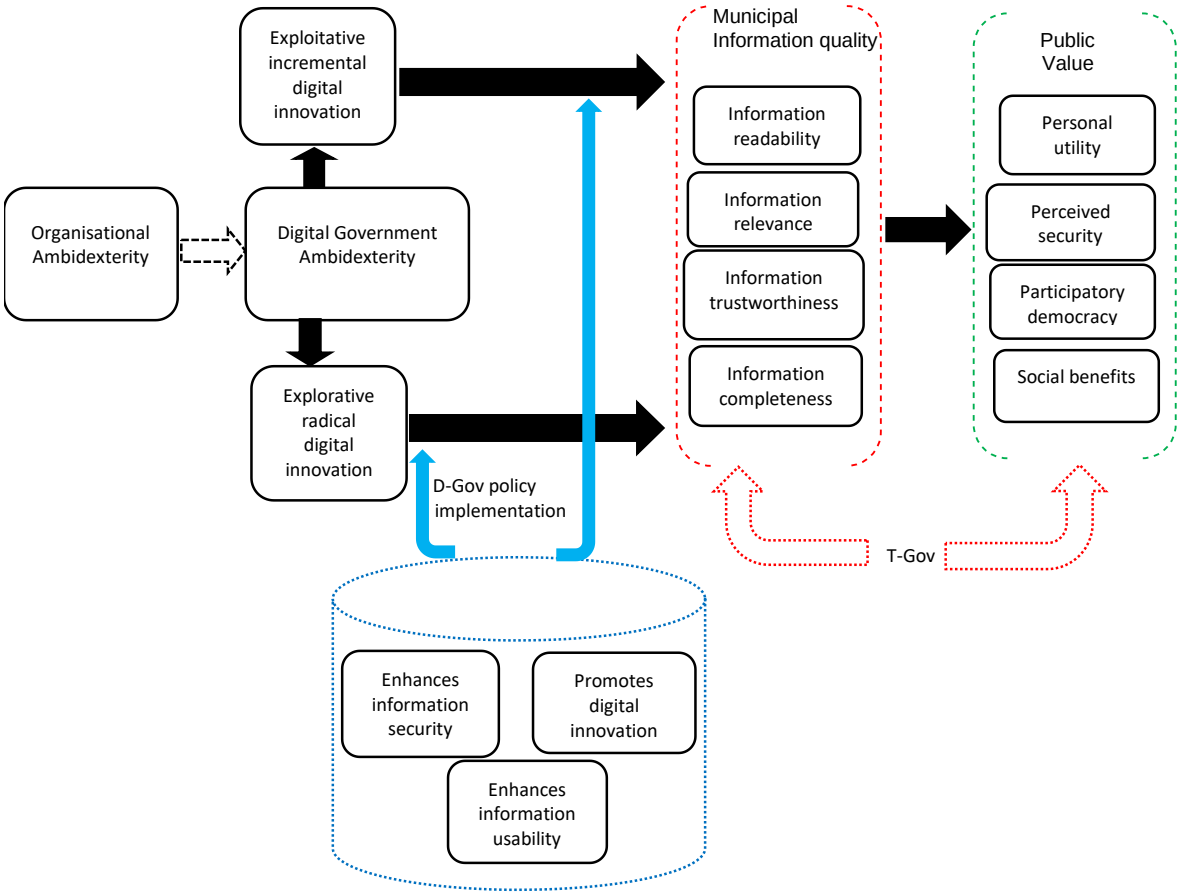

Figure 7.4: MunINFORQUAL Framework based on study findings

Note: Black arrows=information flow, blue arrows=moderating role, red dotted arrows=Transformational Government , black dotted arrows ambidexterity.

7.5 Concepts and Literature Guiding the Study

Table 7.8 presents a summary of literature which inform the current study. The Transformational Government field is central to the application of interactive digital technologies which focus towards the creation of public value (Kamaruddin and MdNoor, 2017; Alshetewi et al., 2018). The current study advances that the realisation of sound Transformational Government could be driven by digital innovation. Further, it is suggested that digital innovation may be achieved through Digital Government Ambidexterity (Björses, 2019). This relates to technological innovation, one of the five Organisational Ambidexterity literature streams as proposed by Raisch and Birkinshaw (2008). However, literature focusing on the influence of Organisational Ambidexterity and Transformational Government is not exhaustive towards realisation of Transformational Government.

Table 7.8: Summary of Literature Guiding the Study

Concepts	Variables	Supporting Literature
Organisational Ambidexterity	Exploitative Innovation Explorative Innovation	(March, 1991; Raisch and Birkinshaw, 2008; Smith and Umans, 2015; Cannaerts, Segers, and Henderickx, 2016; Boukamel and Emery 2017).
Digital Government Ambidexterity	Exploitative Incremental Digital Innovation Explorative Radical Digital Innovation	(Matheus and Janssen, 2017; Palm & Lilja, 2017; Björses, 2019; Liang et al., 2019).
Municipal Information Quality	Information Readability Information Relevance Information Trustworthiness Information Completeness	(Fehrenbacher, 2016; Zaidi, 2017; Malik et al., 2017; Gil-Garcia et al., 2018; Verkijika and De Wet, 2018).
Public Value	Personal Utility Perceived Security Participatory Democracy Social Benefits	(Talbot, 2008; Marek, 2016; Karkin et al., 2018).

7.6 Reflections on the Proposed Framework

What is apparent from undertaking this study is that Transformational Government field is still in its infancy, and as a discipline yet to be realised by many organisations. Driven by the notion to establish relationships between variables towards realisation of T-Gov, the researcher found it appropriate to reflect on the proposed framework and conceptulisation with a positivist approach to support the study. Notably, the advancement of this framework should not be regarded as a total remedy to all challenges currently befalling municipalities in the context of developing world. Rather, this is a call for researchers, municipal managers and government

agencies to think differently about how T-Gov can effectively and efficiently realised, particularly with reported high statistics on ICT diffusion rate and ubiquitous of digital technologies (Gil-Garcia et al., 2018). Information quality is but one of the pillars influencing the creation of public value particularly if one considers the full model of IS Success which includes system quality, information quality, user satisfaction and organisation effectiveness. Further, not only can public value be realised through information quality, but also that requires municipalities to become digital government ambidextrous so as to experience digital innovations.

However, citizen-centricity realised through digital technologies is regarded as the key driver of Transformational Government. This means that municipalities need to regard citizens as co-creators of the digital government programs. This may include involving citizens in budgetary consultation matters and decision making in developmental projects. By so doing, this may possibly alleviate some of the misconceptions associated with lack of trust in municipalities. In addition, this status quo may stimulate citizen participation through utilisation of digital government platforms. In essence, the development of this framework view T-Gov as central in addressing citizens' needs related to the effective utilisation of digital government platforms for public value. Particularly, this idea regards innovation of digital government platforms as essential for evaluating the realisation of the aspirations of T-Gov.

The framework also put forward digital innovation as an actor in achieving Transformational Government. Since Transformational Government focuses at the lowest of grassroots citizen participation through digital government platforms, an in-depth look into the artifacts of information quality becomes important. Digital innovation realised through digital government platform has been found to represent different outcomes in terms of information quality (Weerakkody et al., 2017; Zaidi, 2017). Further, the current study offered an in-depth investigation of information quality to discover some artifacts which may influence citizens towards interacting with municipal through digital government platforms. The findings from the current study, have demonstrated lack of understanding of just how diverse qualities of information influence citizens' perceptions of their municipalities in becoming Transformational Government.

The current study further advances the notion that digital innovation can be realised through embracing Digital Government Ambidexterity. The outcome of Digital Government Ambidexterity process is embedded in the capabilities of municipalities successfully integrating exploitative incremental digital innovation and explorative radical digital innovation (Björses, 2019). Notably, not all aspects of municipal require exploitation innovation only

(Gieske, Duijn, and Buuren, 2019), but some may require that municipalities employ the integrated approach of exploitative incremental digital innovation and explorative radical digital innovation towards realisation of information quality for public value. Based on the current study, information quality and public value are viewed as the crux of Transformational Government. However, this support literature which put forth the view that the seemingly contradictory of Organisational Ambidexterity construct of exploiative and explorative innovation should be treated as complimentary forces (Brion, Sébastien; Mothe, 2016).

The framework further acknowledges that digital government policy implementation should be considered if Transfomational Government initiatives are to be realised in the context of developing countries (Cullen and Hassall, 2016; Ruhode, 2016). Consequently, policy implementation tends to drive programs to success (Lupilya and Jung, 2015; Cullen and Hassall, 2016) and this cannot be ignored. Notably, a number of T-Gov programs from the developing world remain ineffective (Lupilya and Hun, 2015), partly due lack of digital government policy or where the policies are present they are either abruptly implemented. Proper deployment of digital government policies may be achieved through concerted efforts by municipalities in engaging all stakeholers with regards to types of digital government policies to be embraced towards the realisation of Transformational Government. Such a move could possibly bolster citizen-municipal interactivity participation on current and future projects. the framework advances

7.7 Chapter Summary

The current chapter put forward a number of factors that are suggested to be instrumental in driving Transformational Government for public value. The chapter began by revisiting the research aim in order to unravel the important factors which inform Transformational Government in the context of developing countries. Based on the study findings, the important artifacts which the study focused on were municipal information quality and public value. Further, it was suggested that the realisation of Tansformational Government is dependent on digital innovations which may be achieved through Digital Government Ambidexterity. Specifically, the focus was on the ability by municipalities to simultaneously pursue exploitative incremental digital innovation and explorative radical digital innovation towards realisation of quality information for the creation of public value.

The chapter further presented highlights reflecting on unsupported and supported study hypotheses. Through the study hypotheses, inference based on synthesised literature and data towards the proposed MunINFORQUAL framework was made. This was done in order to validate the proposed framework. The validation process was further conducted by

analysing data collected from the focus group discussions. Further, a refelction on the proposed MunINFORQUAL framework was conducted focusing on conceptulisation of the framework and all its factors.

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

This chapter presents the conclusions and recommendations of this thesis. The chapter provides an overall summary of the thesis, and also reflected in this chapter are the guiding research questions. Further, the contribution to knowledge, limitations and recommendations for future research is also provided.

8.2 Assessing the Research Study and Contributions

In its endevour to examine the influence of Digital Government Ambidexterity on Transformational Government, this thesis presented the central arguments based on the specific municipal information quality model for explaining public value in the context of municipalities from developing countries such as Zimbabwe. The central argument of the current study focused on expanding existing literature on Transformational Government by investigating its possible linkages with the management literature concept of Organisational Ambidexterity. The aim was to examine the influence of Organisational Ambidexterity on Transformational Government and the development of a specific municipal information quality model for enhancing public value in the Zimbabwean context. Thus, the main research question driving the current study was: *How does Digital Government Ambidexterity influence Transformational Government in the context of Zimbabwean municipalities.* Particularly, what prompted this study was the reported citizen-municipal apathy regarding the utilisation of digital government platforms.

Transformational Government is touted as the driving force for digital innovations towards promoting efficient, effective and friendly operations in public administration (Nhema, 2016; Kamaruddin and MdNoor, 2017). Nevertheless, despite the reported benefits associated with embracing Transformational Government, scholars lament that T-Gov initiatives in the context of developing countries are failing (Ayantunji, 2016; Nhema, 2016; Kamaruddin and MdNoor, 2017; Alshetewi et al., 2018), and this has further raised concerns on the impact of digital technologies present for the creation of public values. Despite the reported Transformational Government failures, the current study postulated that digital government technologies are capable of driving transformational initiatives.

The conceptulisation of Transformational Government promotes the understanding about how T-Gov initiatives impact on citizens for public value. For instance, Alshetewi et al. (2018) acknowledges that though the concept of T-Gov is complex and in its early stages currently, many governments have since moved towards embracing the concept. What necessitated the move was that T-Gov focuses on citizen-centricity, and puts the needs of citizens and business at the center of interactive online processes. However, the success and failures of Transformational Government pivots around government's capabilities towards innovation, particularly in the context of developing countries (Nhema, 2016). The current study advances that T-Gov may be realised through digital innovation on digital government platforms towards public value. Such digital innovations may possibly solve some of the citizen-municipal problems related to trust, thereby promoting e-participation.

The results of this study offer a new perspective relating to the role of synchronised capabilities of exploitative incremental digital innovation and explorative radical digital innovation towards digital government platform innovation. This shows that the integration between these capabilities on digital government platforms lead to greater munical information quality. This inference is significant, as there is paucity of studies to have used a quantitative approach in testing the synchronised capabilities on information quality in the context of municipalities from developing countries.

Notably, this study provides an in-depth understanding about the role of simultaneous capabilities by means of moderated-mediated test. Specifically, this moderated-mediated test presented in this study enhances our understanding about how and under what circumstances the synchronisation of exploitative and explorative digital innovation take place. This approach better views these capabilities as complementary forces than as competing forces. Such an approach leads to higher adoptive capacities enabling managers to both exploit and explore existing and new knowledge and capabilities (Klinger, 2016; Maine and Svensson, 2018). Moreover, the success and survival of an organisation does not exclusively depend on exploitative innovation which is the general norm in municipalities, but rather it requires that they embrace the integrative approach for sustainable operations. Based on the study results, it also became clear that Organisational Ambidexterity was not only embedded on an individual's ability to apportion time between competing activities as aluded to by some scholars (Kobarg, Wollersheim, Welpe, & Spörrle, 2017; Rosing & Zacher, 2017). However, this study shows that integration of exploitative incremental digital innovation, and explorative radical digital innovation capabilities enhances municipal's capacity to implement digital innovation that can be more effectively implemented if sound digital government policy enactment are put in place (Lupilya and Hun, 2015).

This study advances theory by articulating that the successful implementation of exploitative incremental digital innovation and explorative radical digital innovation is grounded in municipal's capabilities to implement digital government policies. However, there is a scantiness of studies that have empirically examined and validated the extent that Digital Government Ambidexterity assists municipals with digital government platform innovation, particularly in the context of developing countries. To this end, the high failure rate of T-Gov in the context of developing countries was indicative of a failure by municipal managers to move along trajectories of the fourth industrial digital revolution.

8.3 Reflecting on the Sub-Research Question

Based on the study results, it can be concluded that lack of Digital Government Ambidexterity in the context of municipalities, adversely affects information quality to the detriment of public value. Further, this study also found significant results on the mediating effects of information quality on the relationship between Digital Government Ambidexterity and public value. In addition, the moderation role of digital government policy implementation was found to have an effect between the relationship of Digital Government Ambidexterity and information quality. A number of findings drawn from this study centered on the research questions and hypotheses that were raised in the study.

In reference to research questions 1: *How does exploitative incremental digital innovation influence municipal information quality?*

This study found that exploitative incremental digital innovation has a positive influence on municipal information quality towards creating public value. It was found to have a positive influence on all the five factors of municipal information quality namely; (information usability, information readability, information relevance, information trustworthiness, and information completeness). This may somewhat provide evidence that there is need for municipalities to embrace incremental digital innovations which might enhance the effective utilisation of digital government platforms towards the creation of public value. Based on this result, it can be concluded that exploitative incremental digital innovation is an important factor on municipal information quality in creating public value. These findings concur with a study by (Cannaerts et al., 2016; Ylinen, 2019) who also indicated that digital innovation brings about the efficiency needed towards enhancing information quality.

In reference to research questions 2: *How does explorative radical digital innovation influence municipal information quality?*

The study found that explorative radical digital innovation has a positive influence on municipal information quality towards creating public value. All the five factors of information quality were found to have a positive influence. This provides evidence that municipalities need to focus on the implementation of radical digital innovations that may enhance interactivity between the organisations and citizens (Barrutia and Echebarria, 2019; Liang et al., 2019). Based on the findings of the first and second research objectives, it demonstrates that a combination (ambidextrous) of exploitative incremental digital innovation and explorative radical digital innovation is critical to achieving municipal information quality for municipalities through an improved ability to multi-task in the face of competing activities of digital technologies towards public value.

Research questions 3: *How does municipal information quality influence the relationship between Digital Government Ambidexterity and public value?*

In addressing research question 3, four factors of information quality were found to have the mediating effect between the relationship of Digital Government Ambidexterity and public value. In addition, out of 40 hypotheses, 28 were supported, meaning that they were statistically significant. The results provide that municipalities need to embrace ambidextrous digital innovation, in order to improve information quality towards public value (Coccia and Coccia, 2017; Liang et al., 2019). Further, in developing information quality framework, information usability was found not to be statistically significant despite it having a positive correlational relationship. This may possibly suggest that citizens do not find any value from information usability. The results obtained correspond with those of Verkijika and De Wet (2018) who found that digital government platforms from Sub-Saharan Africa are characterised by poor usability, making it difficult to advance Transformational Government initiatives. In addition, **H9a**, **H9b**, **H10a** and **H10b** were also found not to be statistically significant. This may possibly mean that lack of information security leads to ineffective utilisation of municipal digital government platforms, and the subsequent loss of trust from the citizens' perspective (Barrutia and Echebarria, 2019). However, based on these findings, it can be concluded that the proposed model satisfactorily mediates the relationship between Digital Government Ambidexterity and public value.

In reference to Research question 4: *How does exploitative incremental digital innovation influence public value,* this study found that exploitative incremental digital innovation has a positive influence on public value. It was found to have a positive influence on all the four factors of public value. Further, when we observe **H13c**, despite having a positive relationship, it was not supported, meaning it is not statistically significant. The possible meaning could be

that citizens do not trust municipal digital government platforms due to lack security feartures (Porumbescu, 2017; Barrutia and Echebarria, 2019). These scholars found that government digital technology platform usage lacks significantly when it comes to public sector trustworthiness, and that trust promotes interactivity leading to superior digital innovation results (Porumbescu, 2017; Barrutia and Echebarria, 2019).

For Research questions 5: *How does explorative radical digital innovation influence public value;* the study found that explorative radical digital innovation has a positive influence on public value. It was found to have a positive influence based on three factors of public value except participatory democracy **H14b**. Hypotheses **H14b** was also not statistically significant together with **H14a** despite them having had significant positive relationship. This could possibly mean that there is lack of digital innovation on municipal digital government platforms leading to less interactivity through participation by citizens (Serrano-Cinca and Muñoz-Soro, 2018). These findings suggest that there is need for ambidextrous digital innovation, something that will foster interactivity between the organisations and their citizens.

For research questions 6: *How does digital government policy implementation influence the relationship between ambidextrous digital innovation and municipal information quality;* firstly, the study did not conduct a statistical analysis for the moderating role of digital government policy implementation on Digital Government Ambidexterity and information quality, instead a focus group discussion was used to validate the framework. The indications from participants were that digital government policies are a necessity in bringing efficiency and providing security on individual and organisation information. The second outcome was that policy implementation promotes digital innovation, though a few participants thought otherwise based on the arguments that sometimes organisations fail to update their policies in line with contemporary development in the digital world. Thus, creating frustrations that militate against the spirit of innovation in organisations.

8.4 Contributions To Knowledge

There are several theoretical, methodological and practical implications that are drawn from the current study. The conceptulisation of Digital Government Ambidexterity made us observe the contradictory nature of Organisational Ambidexterity, and how that impacts on Transformational Government. Further, this enabled the researcher to assess the combided effect of three theories informing the study. A combination of epistemological perspective including positivism applying the quantitative approach was used in addressing questions

relating to the contradictory nature of Organisational Ambidexterity influencing Transformational Government. To this end, municipalities should begin to focus towards creating Transformational Government organisation through persistant pursuance of digital government innovation. Further, in order to succeed with digital government innovation, digital government policies neen implementation.

8.4.1 Theoretical Contribution of the Study

The fundamental argument of the current study began the process by unravelling an alternative conceptulisation of Transformational Government and Digital Government Ambidexterity, within the context of a developing country such as Zimbabwe. This conceptulisation enhances our understanding about the nature and roles of contradictory constructs of Digital Government Ambidexterity and the artifacts of Transformational Government in the context of management literature and Information System respectively. The findings of this study offer a new perspective as to how the integration of exploitative incremental digital innovation and explorative radical digital innovation moderated by digital government policy implementation, effectively enhances municipal information quality rather than deploying these capabilities as competing forces. This is against the backdrop of knowledge that much of the existing literature predominantly originates from the developed countries. However, this necessitated the conceptulisation of the main concepts with the view to address the stated gap by drawing from developing countries such as Zimbabwe's experiencies. The study also contributed by further exposing the insufficiency of studies focusing on digital innovation in the context of municipalities in developing countries. Much of the existing literature in the field of Organisational Ambidexterity largely focused on other literature streams of concepts such as organisational adaptation, strategic management, organisational design, organisational learning, with less focus on the digital innovation stream (Raisch and Birkinshaw, 2008; Boukamel and Emery, 2017; Gieske et al., 2019).

This study further illustrated how different information quality factors may influence citizens' perceptions of public value. For instance, Marie et al. (2015) found that information completeness was not a predictor to an outcome variable, yet the same construct treated as an endogenous variable had a positive influence on public value, beyond its significant mediation effect. These findings may potentially assist future researchers to better develop and test theory, by assessing other possible information quality factors suggested to provide a solution related to Transformational Government failures from a developing countries' context. However, this study extends and validates theories advanced by Alenezi et al. (2015); Weerakkody et al. (2016); Alzahrani et al., (2017); Alshikhi and Abdullah, (2018), who contend

that information quality helps to stimulate citizens' interest towards interactivity with digital government platforms. This study advances that frequent ambidextrous review of digital government platforms will lead to municipal information quality, thereby making the realisation of Transformational Government possible. This further supports the development of MunINFORQUAL framework suggested to be more applicable to municipalities from developing countries. By developing the framework, this study extends and validates the theory of Information System Success and Public value in articulation of the concept of T-Gov.

By using the positivism paradigm and relying on a quantitative approach, this presented an illustration how the approach may be used to support the concept of Organisational Ambidexterity towards digital innovation. There are growing calls from several scholars challenging municipalities to embrace digital innovations in order to realise T-Gov, and this is partly driven by the fourth industrial digital revolution (Kayisire and Wei, 2016; Dube and Gumbo, 2017; Mawela et al., 2017). With this in mind, this study has made further contribution theoretically by extrapolating the application and significance of dynamic capabilities within Organisational Ambidexterity. There is paucity of studies that have used the dynamic capabilities theory in the context of Organisational Ambidexterity, yet the concept is embedded in management innovation literature (Boukamel and Emery, 2017; Fladvad et al., 2019). This study contributed to this field of dynamic capabilities' applications towards an understanding of digital innovation by municipalities in the context of developing countries. The study further advanced theory by highlighting the extent to municipalities become ambidextrous. These findings provide a step forward in enhancing our understanding of the extent that integration between exploitative incremental digital innovation and explorative radical digital innovation enables municipalities to become ambidextrous.

This study addresses the illuminating calls for research pertaining the role of simultaneous capabilities (Palm, 2017; Trong Tuan, 2017; Björses, 2019; Peng, 2019).

8.4.2 Methodological Contribution of the Study

The study employed a positivism paradigm relying on the quantitative approach to understand the research from a different viewpoint. More so, regarding inconsistence relating to the application of epistemology, ontology and axiology (Orlikowski & Baroudi, 1991; Mark Saunders et al., 2009), the current study adopted the epistemological perspective which encompass the positivism paradigm. In this regard, the study extends and validates the use of a positivism paradigm which is widely used by scholars researching around the field of Information System (Orlikowski & Baroudi, 1991; Mindful of the aforementioned statement, this study acknowledges that other research around the concept of Organisational

Ambidexterity predominantly employed epistemology interpretivism paradigm. This study provides a step forward for understanding the causal effects of ambidextrous factors of exploitative and explorative on Transformational Government. This was achieved through the construction of observed and measured factors of Digital Government Ambidexterity. These factors were directly tested through hypotheses that were validated (Saunders et al., 2016).

Further, this study made a contribution by availing epistemological perspective including positivism and relying on quantitative approach as an alternative for researchers who seek to make an in-depth understanding of the two seemingly contradictory constructs of Organisational Ambidexterity i.e. exploitative incremental digital innovation and explorative radical digital innovation in the context of developing countries.

8.4.3 Practical Contributions of Research Findings

There are also significant contributions to organisations suggested from the current study. Firstly, results show that a combination of exploitative incremental digital innovation and explorative radical digital innovation are an important factor that cannot be ignored in organisations because of their drive towards promoting Transformational Government. The combination should be embraced by organisations for the reasons that it was found to influence information quality. Having digital government platforms only is not enough, but these platforms should be tailor made to meet the needs of various stakeholders, hence the need for municipalities to constantly improve them so that they can become platforms where citizens may interact with organisations (Smith and Umans, 2015; Boukamel and Emery, 2017; Fladvad et al., 2019). More so, these organisations need to be aware of the ever changing demographic digital choices, digital innovations brought about by the digital technology advances and the general societal developmental trends.

Secondly, the results from the current study indicate that there is need for quality information, as that may promote digital government platforms utilisation by citizens. The Findings from previous studies demonstrate that there was apathy when it comes to digital government platforms utilisation amongst citizens and municipalities particularly from Sub-Saharan Africa (Ayantunji, 2016; Dube and Gumbo, 2017; Mawela et al., 2017). With those findings, it may be suggested that part of the reasons why there was less digital government platforms' utilisation in municipalities, could be associated with poor information quality, due to lack of digital innovation. The Lack of digital innovation may present adverse effects to municipalities, possibly through inefficient systems. Digital innovation leveraged through digital technologies may bring about organisational efficiency, through timeous and correct records, of which its absence may result in mistrust between citizens and municipalities. This is against the

background that some municipalities continue to invest towards digital technologies, some of which they continuously fail to put to optimal use to the detriment of citizens.

Thirdly, there have been calls by several scholars indicating that one of the major reasons why municipalities from developing countries are slow to realise the impact of Transformational Government is the lack of sound digital government policy implementation (Lupilya and Jung, 2015; Nhema, 2016; Roengtam et al., 2017). The results from the current study reveal that digital government policy implementation was vital towards full utilisation of digital technologies, and embracing of digital innovations to the benefit of all the stakeholders. The participants somehow confirmed the findings from studies by Lupilya and Jung (2015) and Ruhode (2016) that indicated that most municipalities despite having digital government policies in place, they still lack on implementation. Further, the results revealed that digital government policy implementation moderate the relationship between Digital Government Ambidexterity and municipal information quality. It is imperative that organisations appropriately implement digital government policies in an attempt to promote digital innovation and keep pace with digital evolution. Through the development and implementation of digital government policies, this study suggest that digital innovations may stimulate high quality information that promote interactivity.

Based on these findings, the study further suggests that information readability was found to be an essential aspect that needed to be considered if an interactive platform was to be established within municipalities especially in the context of developing countries. If citizens find it difficult to understand information provided through municipal digital government platforms, it may result in less utilisation of the digital government platforms. Therefore, municipalities should embrace digital innovation through alterations of digital technologies to provide platforms that offer language options. Information relevance was another important factor to be considered towards providing information quality to citizens. Despite the presence of digital government platforms in many municipalities, these organisations still fail to provide their citizens with relevant information. Accordingly, this calls for municipalities to embrace digital innovative approaches towards realising the impact of Transformational Government.

Furthermore, information completeness was found to be a contributing factor towards less digital government platform utilisation. This could relate to the provision of a platform where citizens may not complete the process of a transaction, for instance, having to download and print a form instead of completing, uploading and sending it online. The findings therefore suggest that information completeness was a crucial factor in creating interactivity between organisations and citizens. Another factor vital to information quality was trustworthiness. With

the reported statistics of high numbers of citizens using digital technologies in Zimbabwe, it was surprising to find information quality in terms of trustworthiness as a challenge in the context of municipalities (Nhema, 2016; Dube and Gumbo, 2017).

Lack of information trustworthiness in municipalities has been touted as one of the reasons why there was apathy in digital government platform utilisation (Porumbescu, 2017; Mahmood et al., 2018; Verkijika and De Wet, 2018). Based on the study findings, citizens have lost trust in municipalities due to unsecured digital government platforms, pointing to the need for digital innovation. The current study advances that municipalities should improve the quality of information through ambidextrous digital innovation towards realising Transformational Government. Embracing Transformational Government may open up opportunities for municipalities through forming partnerships with other municipalites across the globe. By the same token, Weerakkody et al. (2016), also suggest that authorities should pay more attention towards promoting information quality as that may create municipal-citizen interactivity.

8.4.4 Limitations of the Study

Some of study limitations that this study experienced are highlighted in this section. The current study's limitation is that it focused only on big cities because of their semblance of high levels of digital government systems, and where uninterrupted internet services is assured. However, this does not affect the core purpose of the study because the same results may be generalised to other urban municipalities. Further, a comparative study between urban and rural municipalities may also be pursued. However, this creates some limitations in as far as generalisation of the results to the entire population is concerned. Further, the role of a moderating variable could not be statistically tested though it was eventually validated through focus group interviews. Possibly a different picture could have been presented if the moderating factor of digital government was statistically tested.

8.4.5 Suggestions for Future Research

The findings in this study have revealed that digital government policy implementation moderates the relationship between Digital Government Ambidexterity and municipal information quality. This finding was validated through conducting focus group interviews. It is advisable for future studies to statistically test the relationship between those constructs and their manifest variables. Furthermore, the findings from the current study, particularly the proposed model, may also be applied to other municipalities from developing countries in the Sadc region and beyond. This may as well include extending the model through the inclusion

of more other different information quality constructs. In addition, future studies may consider conducting comparative studies in order to get an in-depth understanding of the challenges associated with lack of digital innovation.

Further, it will be interesting for future research to investigate further the concept of digital innovation with particular focus on municipalities from the developing countries. This may be extended to include a comparison between urban and rural municipalities. Further, studies that have been carried out on Organisational Ambidexterity have largely focused on different literature streams such as; strategic management, organisational design, organisational learning, organisational adaptation, and less on digital innovation within public sector organisations such as municipalities. Furthermore, most of these studies that focused on municipalities used the qualitative research design, so it would be interesting to see what findings a study that would use both the quantitative and qualitative research designs may come up with.

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APPENDIX A: RESEARCH ETHICAL CLEARANCE: UNIVERSITY OF VENDA

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mr N Ndlovu

Student No:
18022733

PROJECT TITLE: **The influence of organisational ambidexterity on transformational government in Zimbabwe: Towards a municipal information quality model.**

PROJECT NO: **SMS/19/BMA/02/2705**

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof NM Ochara	University of Venda	Promoter
Dr RL Martin	University of Venda	Co - Promoter
Mr N Ndlovu	University of Venda	Investigator – Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: May 2019
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Senior Prof. G.E. Ekosse

UNIVERSITY OF VENDA
DIRECTOR
RESEARCH AND INNOVATION
2019 -06- 04
Private Bag X5050
Thohoyandou 0950

University of Venda
PRIVATE BAG X5050, THOHOYANDOU, 0950, LIMPOPO PROVINCE, SOUTH AFRICA
TELEPHONE (015) 962 8504/8313 FAX (015) 962 8060
"A quality driven financially sustainable, rural-based Comprehensive University"

APPENDIX B: RESEARCH APPROVAL LETTER: BULAWAYO

City of Bulawayo

Town Clerk's Office
Municipal Buildings
Fife Street
P.O.Box 591
Bulawayo

All Communications
To be addressed to the
Town Clerk

Tel: (263-9) 75011
Fax: (263-9) 69701
Email:
Website:
Facebook: The City of Bulawayo
Twitter:@CityofBulawayo
Call Centre: 08084700 (Econet,)
08004700 (Telone) (09) 71290

REF: JBM/MZ.74-00-00

10 - 06 - 2019

MR NJABULO NDLOVU
UNIVERSITY OF VENDA
PRIVATE BAG X5050
THOHOYO, SOUTH AFRICA

Dear Mr/Mrs/Miss NJ. NDLOVU

RE: REQUEST FOR PERMISION TO CARRY OUT RESEARCH ON COUNCIL PREMISES: THE INFLUENCE OF ORGANISATIONAL ACCOUNTABILITY ON TRANSFORMATIONAL GOVERNANCE IN ZIMBABWE: TOWARDS A MUNICIPAL QUALITY MODEL.

Your letter on the above matter refers.

Please be informed that Council acceded to your request to carry out research within Bulawayo City Council premises subject to the following conditions:

a) You should submit a copy of your research findings after completing the research exercise.
b) Council is to be indemnified against any accident/mishaps, which may occur during the conduct of the research.

Accordingly you may approach any of Council's Service Departments as appropriate for assistance.

Yours faithfully

TOWN CLERK

CITY OF BULAWAYO
HUMAN CAPITAL DEPT.
10th FLOOR MUNICIPAL
10 JUN 2019
TOWER BLOCK
J. TONGOGARA ST.
P.O. BOX 555 OR 559 BULAWAYO
TEL: +263-9-

APPENDIX C: RESEARCH APPROVAL LETTER: GWERU

ALL COMMUNICATIONS TO BE ADDRESSED TO THE CHAMBER SECRETARY

CITY of GWERU

CHAMBER SECRETARY'S DEPARTMENT
Municipal Offices
P.O. Box 278 Telephone 263-054-224071-9
Fax 263-054-24309-Gweru, Zimbabwe
E-mail: gweruchambersec@comone.co.zw

If calling or phoning this matter.
Please ask for
MR NEMUSESO

Your Ref:
Our Ref: JN/nmd/Personnel

14th June 2019

Mr Njabulo Ndlovu
University of Venda
Private Bag x5050
Thohoyandou, 0950
SOUTH AFRICA

Dear Sir

RE: REQUEST TO CARRY OUT AN ACADEMIC RESEARCH IN GWERU CITY

I refer to your letter dated 11 June 2019 requesting to carry out a research and I am pleased to inform you that your request was considered and permission has been granted.

Please be kindly advised that permission is granted on the following conditions:

1) That you do not publish the name of Council officials.
2) That you also seek police clearance in the case that you want to interview residents.
3) That Gweru City Council shall not be liable of any action arising from your research.
4) That you undertake to deposit of the said research which shall be submitted to the Town Clerk's office.

V.D CHIKWEKWE
CHAMBER SECRETARY

cc : Human Resources Manager
File

APPENDIX D: RESEARCH APPROVAL LETTER: VICTORIA FALLS

MUNICIPALITY OF VICTORIA FALLS
P.O. BOX 41
VICTORIA FALLS
ZIMBABWE
TEL: 263-013-44311, 44210, 43531/3

TOWN CLERK
LIVINGSTONE WAY
VICTORIA FALLS
ZIMBABWE
FAX: 263-013-44308
TELEFAX: 51691 ZW

REF:

PM/HRO/NN/cn

YOUR REF:

13 November 2019

Mr N. Ndlovu
Plot 45 Bulawayo Drive
Douglasdale
Bulawayo
Zimbabwe

Dear Sir

RE: Request for permission to conduct research within Victoria Falls Municipality

The above subject matter, and your letter to us, dated 1 August 2019, refer.

Council, in their Ordinary Full Council Meeting No. 10 of 2019, resolved that your request to carry out research on "The influence of Organisational ambidexterity (innovation) on transformational government in Zimbabwe" be approved.

The approval was on the following terms and conditions:

- that the authority to carry out the research is as requested,
- the research will be at your own cost,
- no cost or expenses are to be incurred by Victoria Falls Municipality, in any way, in relation this research,
- after the research has been conducted, one copy must be given to Victoria Falls Municipality, at no cost to Council,
- Council retains the right not to disclose any requested information by the student, if that information is deemed by Council to be confidential and
- the responses obtained and the findings to be treated with confidentiality.

Please indicate whether you accept or not you accept the approval for your request to carry us the research on all the terms and conditions listed above.

Yours sincerely

Mabhurent, P
Human Resources Officer

I..... do/do not accept the approval of my request to carry out the research on all the terms and conditions listed in the approval letter above.

Signed.....Date.....

APPENDIX E: RESEARCH QUESTIONNAIRE

Dear Participant,

Thank you for agreeing to be part of this research.

My name is Njabulo Ndlovu, a registered student at the University of Venda, South Africa, studying towards the Doctor of Philosophy degree in Business Management. I am conducting a survey on the topic **"The influence of Organisational Ambidexterity on Transformational Government in Zimbabwe**". The aim of the study is to support municipalities in their assessment into how an ambidextrous web portal influences municipal information quality towards public value.

The questionnaire takes up approximately 20 minutes, your participation and cooperation is highly appreciated. This study is supervised by Prof. N. M. Ochara who can be contacted on the following numbers:details; +27814938478 / +27159628216. muganda.ochara@univen.ac.za; and Dr R.L. Martin +27716813099; Robert.martin@univen.ac.za

INSTRUCTIONS TO RESPONDENTS

The following instructions and conditions must be understood by all respondents:

(a) Answer from your own perspective, as honestly as possible;
(b) Please complete all sections, do not leave any unanswered questions;
(c) Please note that your name is not required, and information you provide shall remain confidential.
(d) Indicate your selected response by marking with a tick **(**√***)***.
(e) There are no wrong or right answers.
(f) Your involvement in this research is voluntary.

The researcher Mr. Njabulo Ndlovu can be contacted on his mobile phone at 0774021050 or 0774442221 or email: ndlovunj4@gmail.com

Thank you.

Mr. Njabulo Ndlovu

Definition of terms;

Organisational Ambidexterity: organisation's ability to simultaneously explore new competencies and exploit existing competencies.

Exploitative incremental digital innovation: relates to minor improvements or simple adjustments in the current technology, digital government programs such as the web portal.

Explorative radical digital innovation: represent significant technological changes or significant improvements on digital government programs such as the web portal.

Secure Sockets Layer (SSL Certificate): it is a standard technology that keep Internet connection secure and safeguarding information sent between two systems, for example the web server and web browser. In addition SSL is used to secure credit card transaction, logins and information transfer. When SSL is successfully installed, **http** changes to **https** where **"s"** stands for secure.

Public value: relate to benefits accruing as a result of organisation-citizen interaction through effective utilisation of digital government initiatives such as digital tecnologies and Internet.

SECTION A: Demographics

1. What is your age?

18 – 24 years	**1**
25 – 35 years	**2**
36+ years	**3**

2. What is your gender?

Male	**1**
Female	**2**

3. Indicate your highest level of study

Primary	**1**
Secondary	**2**
Diploma	**3**
First Degree	**4**
Masters	**5**
Doctorate	**6**

4. Indicate your Municipality

City of Bulawayo (metropolitan)	**1**
City of Gweru	**2**
Victoria Falls Municipality	**3**

Section B: Internet Familiarity and Internet Usage Habits

5. What is your primary personal use of the Internet?

Information and product search	**1**
E-mail or other communication (e.g chatting on WhatsApp, Facebook)	**2**
Games, Music, Entertainment, Research, Work	**3**
On-line bills payment	**4**
Other	**5**

6. How long have you been familiar with the Internet?

Less than 1 year	**1**
1 – 3 years	**2**
4 – 6 years	**3**
7 – 10 years	**4**
11 years or more	**5**

7. How long do you use the Internet per day?

Less than 1 hour	**1**
Up to 1 hour	**2**
1 – 3 hours	**3**
3 – 5 hours	**4**
5 hours +	**5**

8. Where do you access the Internet?

At home/ Wi-Fi	**1**
Internet Café	**2**
Work	**3**
College/ School	**4**
Other, specify in the space provided below.	**5**

Other……

SECTION C: Assessment of Organisational Ambidexterity factors influencing Transformational Government .

Digital Government Ambidexterity Dimensions **Exploitative Incremental digital Innovation**		**Strongly Disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**
EIW1	The municipal web portal offers services image as thumbnails. For example(clearly defined icons or images indicating services offered and accessible through the webpage)	1	2	3	4	5

EIW2	The municipal web portal offers clear display of page contents defined by moving graphics.	1	2	3	4	5
EIW3	There is consistence of logical webpage information.	1	2	3	4	5
EIW4	There is presence of clear menu items on each page defined by foreground multi-coloured icons.	1	2	3	4	5
EIW5	There is a clear Municipal logo on the web portal	1	2	3	4	5
Explorative Radical digital Innovation		**Strongly Disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**
ERW1	The municipal web portal is optimised for different devices. For example (one can access the webpage from their mobile phones).	1	2	3	4	5
ERW2	Social media platforms such as Facebook, Twitter, WhatsApp, YouTube, are integrated to the municipal web portal. For example (they are defined by icons on the webpage)	1	2	3	4	5
ERW3	The municipal web portal offers an interactive payment options through individual portals.	1	2	3	4	5
ERW4	There is an indication of information security from the municipal webpage through SSL Certification. For example (SSL Certificate is installed to the Web server to secure session with browsers and the standard http changes to https).	1	2	3	4	5
ERW5	Municipal web portal offers services in my preferred language. For example (language option).	1	2	3	4	5
Municipal Information Quality Dimensions Information Usability		**Strongly Disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**
IUS1	I always find it simple to follow links on municipal web portal.	1	2	3	4	5
IUS2	I always find municipal information provided for through the web portal platform understandable.	1	2	3	4	5
IUS3	Citizens' information accessible through municipal web portal is customised. For example (information is citizen tailor made)	1	2	3	4	5
ISU4	I find help pages useful when one is navigating or transacting on portals accessible through municipal web portal.	1	2	3	4	5
Information Readability						
IRD1	I always find municipal web portal content (information) correct.	1	2	3	4	5
IRD2	I always find municipal information presented through municipal web portal clear. (For example, readable in terms of style and uniformity).	1	2	3	4	5
IRD3	I always find municipal information presented through municipal web portal consistent. (For	1	2	3	4	5

	example, not characterised by irregular frequent changes)					
IRD4	I always find the use of pictures on municipal web portal making it simpler to understand information.	1	2	3	4	5
Information Relevance						
IRL1	I always find information uploaded on the municipal web portal useful for facilitating on-time settlement of bills.	1	2	3	4	5
IRL2	I always find information uploaded on the municipal web portal relevant as it helps citizens understand municipal's current state of affairs.	1	2	3	4	5
IRL3	I often download through the web portal relevant municipal forms, complete and return them online.	1	2	3	4	5
IRL4	I always find information on municipal web portal relevant hence influencing one's decision towards continuous interactivity.	1	2	3	4	5
Information Trustworthiness						
ITR1	I am concerned with privacy of personal information during a transaction on my portal accessed through municipal web portal	1	2	3	4	5
ITR2	I am concerned about access to information by unauthorised persons to personal accounts.	1	2	3	4	5
ITR3	I always securely sign up on my portal accessed through municipal web portal.	1	2	3	4	5
ITR4	I believe that information presented through municipal web portal is truthful.	1	2	3	4	5
Information Completeness						
ICP1	Municipal web portal always provide up to date information.	1	2	3	4	5
ICP2	Municipal web portal information is adequate to enable citizens complete their tasks. (For example, smooth completion of the transaction on the portal).	1	2	3	4	5
ICP3	Municipal web portal information is always accurate enabling citizens to make informed decisions.	1	2	3	4	5
ICP4	Municipal web portal information is supported with multi-coloured icons to enhance clarity.	1	2	3	4	5
Public Value Dimensions **Personal Utility**						
PUT1	Municipal satisfactorily interact with citizens through a variety of choice of communication channels accessed through the web portal (For example, Twitter, Instagram, Facebook, WhatsApp etc.)	1	2	3	4	5
PUT2	Municipal web portal portal information is customised in such a way that it is user-friendly.	1	2	3	4	5

PUT3	I often find municipal web portal information easily accessible.	1	2	3	4	5
PUT4	I often find information provided through municipal web portal useful.	1	2	3	4	5
Perceived Security						
PSC1	I always find it safe to transact on the portal through municipal web portal. For example (the web is SSL Certified)	1	2	3	4	5
PSC2	I always access information from municipal web portal through logging in with a password.	1	2	3	4	5
PSC3	I believe personal information on municipal web portal may be used for other purposes without my authorisation.	1	2	3	4	5
PSC4	I believe personal information that is kept in municipal database accessed through the web portal is always secure. For example (may not be accessed by hackers)	1	2	3	4	5
Participatory Democracy						
PDE1	I always freely voice my concerns about municipal services through the use of municipal web portal.	1	2	3	4	5
PDE2	I always find information freely provided through municipal web portal truthful such that it can be relied upon.	1	2	3	4	5
PDE3	I often find information freely made available through municipal web portal important such that one can liberally use it for their benefit. e.g (open data)	1	2	3	4	5
PDE4	Individuals can easily upload information (open data) on municipal web portal for the benefit of other citizens.	1	2	3	4	5
Social Benefits						
SOB1	I always find information uploaded on municipal web portal of benefit to my day to day life.	1	2	3	4	5
SOB2	I always view information on meetings from municipal web portal accessed through my mobile phone.	1	2	3	4	5
SOB3	I always receive through municipal web portal information alerting on potential disasters e.g (weather, diseases).	1	2	3	4	5
SOB4	I always receive information from municipal web portal on local social events through my mobile phone.	1	2	3	4	5

Thank you for your participation

APPENDIX F: FOCUS GROUP GUIDE

University of Venda

School of Management Sciences

Title of the Study: ***The influence of Organisational Ambidexterity on Transformational Government in Zimbabwe: towards a municipal information quality model.***

INTRODUCTION TO THE RESEARCH

My name is Njabulo Ndlovu, a PhD student in the School of Management Sciences University of Venda under the supervision of Prof N.M. Ochara and Doctor R.L. Martin. I am currently undertaking a research study on how Organisational Ambidexterity may be applied towards the enhancement of Transformational Government . The aim of this research study is to come up with a framework (MunINFORQUAL) that can be used to measure digital aided information quality in the context of municipalities.

The information I will gather will be used to evaluate the developed MunINFORQUAL framework through digital innovation towards promoting public value. Please be assured that ethics issues are very important in this study and therefore, nothing will be linked back to the respondents. The interview session should take at most 15 minutes.

To the researcher, there is no wrong answers, so please be as open and honest as possible with your opinions and views. Because you are in a group, you will hear each other's views; let's agree that everything said in this room stay confidential between the group members.

Demographics

Date of interview	
Time of interview	
Venue of the interview	
Duration of the interview (hrs)	
Current position/Role in the organisation	
Number of years in the organisation	

QUESTIONS
1. What purpose does e-Gov policy / ICT policy serve in an organisation?
2. In view of the framework, do you think e-Gov policies / ICT policies can work for or against digital innovation? Why?

Thank you for your time

APPENDIX G: MAP FOR SUB-SAHARAN AFRICA COUNTRIES