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Accelerating Digital Government through Public Sector Innovation in South Africa: The Role of Open Government Data

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2024
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Delwa, Qinisile. (2024). Accelerating Digital Government through Public Sector Innovation in South Africa: The Role of Open Government Data [Master's dissertation, University of the Witwatersrand, Johannesburg].WireDSpace.

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Accelerating Digital Government through Public Sector Innovation in South Africa: The Role of Open Government Data

Qinisile Delwa

A research report submitted to the Wits Business School in the University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Innovation Studies

Johannesburg, 2024

ABSTRACT

The study aimed to explore the impact of Open Government Data (OGD) on achieving a digital government in South Africa. The study investigated OGD as a public sector innovation and how it contributes to an enhanced approach to designing service-delivery-oriented digital solutions. Experiences of other countries using OGD and its social and economic potential were explored, identifying and comparatively contrasting how such opportunities can be further exploited within the unique circumstances of South Africa. Furthermore, the study reflected on the conception of public sector innovation in practice by observing how this finds expression in existing open government data initiatives to identify potential diffusion mechanisms and opportunities. The motivation for this study is to demonstrate public sector innovation in practice, using OGD as an example of the potential value of public sector innovation that still needs to be explored. The study approach was a qualitative comparative case study where semi-structured interviews were conducted with public sector experts involved in open data projects and independent and retired experts. The data from the interviews was analysed thematically in an inductive approach. The key findings of this research report indicate that South Africa has not made significant progress in digital transformation due to fragmentation and a disjointed strategic approach. The research confirmed the vital role of data, specifically open government data, in advancing digital transformation. Furthermore, based on the case studies, the research findings indicate that open government data-driven public sector innovations hold great potential to accelerate digital government transformation in South Africa.

DECLARATION

I, Qinisile Delwa, declare that this dissertation is my unaided work. It is submitted in partial fulfilment of the requirements for the Master of Management in Innovation Studies degree at the Wits Business School at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

30th day of August 2024



Qinisile Delwa

DEDICATION

I would like to dedicate this research report to my grandmother, Mrs Elsophina Delwa, and my mother, Mrs Phindile Dlamini, née Delwa. They shaped my early ideas of servant leadership, compassion, and hard work, which have inspired the proud public servant that I am today.

ACKNOWLEDGEMENTS

I want to acknowledge my partner Ray for his immeasurable support. My children Kachi, Zipho, and Masese, thank you for understanding whenever I could not be there.

I would also like to acknowledge and thank all the participants of this study for their time and invaluable insights.

I want to thank my supervisor, Prof. Mjumo Mzyece, for his patience, guidance, and support. I also wish to acknowledge the Wits Business School's academic and administrative staff for their support throughout my studies.

Finally, thanks to my classmates for always cheering and encouraging me.

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LIST OF ABBREVIATIONS AND ACRONYMS

4IR	Fourth Industrial Revolution
DCDT	Department of Communications and Digital Technologies
DEG	Digital Era Governance
EGDI	E-Government Development Index
EY	Ernest & Young
GIFT	Global Initiative o Fiscal Transparency
ICT	Information Communication Technologies
NESTA	National Endowment for Science Technology and the Arts
NPM	New Public Management
SITA	State Information Technology Agency
OECD	Organisation of Economic Co-operation and Development
OGD	Open Government Data
OGP	Open Government Partnership
PSI	Public Sector Innovation
UNDESA	United Nations Department of Economic and Social Affairs

CHAPTER 1: INTRODUCTION

1.1 Purpose of the Study

Governments worldwide are pursuing the Digital-Era Government/Governance, a new form of public sector reform (Lindquist, 2022). The South African government is no exception in this endeavour. In the National Development Plan (NDP), the South African government has set a vision for the country with several goals, amongst which is the achievement of digital government (National Planning Commission, 2012).

Several governments have established digital service agencies, initiated open data platforms, established innovation labs, and espoused principles of "open government" (Lindquist, 2022). The digital government holds a grand promise for citizens and society in general. Many in the open government community argue that digital governments espouse specific values and principles, namely openness, transparency, innovativeness, and agility, driven by the needs of the citizen (OECD, 2016).

The primary purpose of this study is to investigate the concept of Open Government Data (OGD) as an innovation with the potential to accelerate the achievement of digital government in South Africa. For the study to explore OGD as an innovation, consideration will be given to open innovation as a type of innovation best suited to advance digital government in the public sector.

The study will explore existing frameworks for innovation in the public sector. It aims to contribute to existing innovation diffusion frameworks in the public sector by using open government data initiatives, which will be reviewed as part of the study.

The study will explore OGD as an enabler for more collaborative citizen-government innovation by helping citizens see challenges and propose solutions using data. It will also explore collaboration with non-governmental organisations (NGOs) and the private sector in developing service delivery innovations leveraging OGD.

This research focuses on exploring OGD mainly in this context to explore open data projects as innovative processes and how they enhance the overall objectives of improving government digital services in South Africa.

A cursory view of literature on OGD suggests that open innovation theory, especially as it relates to user-centred innovation, is a prominent approach for studying innovation in the public sector (Smith & Seward, 2020). Plantinga and Adams (2019) also argue that one of the more prominent practices for fostering public sector innovation and the use of OGD in South Africa has been the adoption of open innovation approaches by government entities (Plantinga & Adams, 2019).

Therefore, this research will rely on open innovation theory as a theoretical framework for exploring OGD as a shared innovation resource, intelligence tool, and collaboration enabler. Furthermore, the research will consider the elements of open innovation relevant to OGD, such as co-creation and crowdsourcing, and their utility in the public sector innovation space.

To better understand the OGD concept in the South African government, this study will explore two open government initiatives focused on open data, including Vulekamali, a project implemented by the National Treasury, and GovChat, an initiative by the Department of Cooperative Governance and Traditional Affairs (COGTA).

1.2 Context of the Study

The South African government has pursued public service modernisation strategies since the advent of democracy in 1994. The first reform strategy to that effect was the 1995 White Paper on the Transformation of the Public Service (Department of Public Service and Administration, 1995), which set out eight priorities for transforming the South African public service as follows:

- Rationalisation and restructuring of the public service.
- Institution building and management.
- Representativeness and affirmative action.

- Transforming service delivery.
- Democratising the state.
- Human resource development and training.
- Employment conditions and labour relations.
- The promotion of a professional service ethos.

The White Paper on Transforming Public Service Delivery (Batho Pele White Paper), which followed in 1996, set out the government's ambitions to increase transparency, encourage innovation and ensure an overhaul of the government machinery to deliver services to meet the needs of South African people (Department of Public Service and Administration, 1997).

The notion of harnessing Information Communication Technology (ICT) systems to enhance governmental efficiency and service delivery initially surfaced within the strategic discourse of the South African government in 2001, culminating in the formulation of the e-Government Strategy by the Department of Public Service and Administration (DPSA) in 2002 (Goonasagree, 2012). The e-Government strategy emphasised ensuring quality management in the delivery of public services (Naidoo, 2012). Moreover, the strategy comprised three distinct phases focusing on the facilitation of access to government service information, the integration of web-enabled interactive transactions, and the provision of multipurpose and personalised services(Department of Telecommunications and Postal Services, 2016). Several public sector ICT policy frameworks, as well as programmes, were implemented over the years to realise the e-Government strategy goals.

In 2015, a National ICT policy review was undertaken, concluding that minimal progress had been achieved in implementing e-government in South Africa (Department of Telecommunications and Postal Services, 2016). The review led to a National Integrated Information and Communication Technologies Policy White Paper (DTPS: 2016) and a revised National e-Government Strategy and Roadmap in 2017. The e-government Strategy was underpinned by a precise vision aimed at digitising governmental services while fostering the transformation of South Africa into an inclusive digital society (DTPS:2017). In addition, national ICT policy identified the need to develop a framework for implementing open governance and open data to

realise the objectives of the Constitution and fulfil South Africa's international obligations as a founding member of the Open Government Partnership (OGP).

The report of the Presidential Commission on the Fourth Industrial Revolution (4IR) has identified a need for a digital transformation strategy in public service delivery as a critical aspect of ensuring a public administration that can support global competitiveness and human well-being in the 4IR (The Presidency, 2020). Furthermore, this report calls for an open data platform for South Africa to drive open data-enabled innovations. The other critical aspect of open data captured in the report is its utility for evidence-based decisions, ensuring public trust and encouraging public engagement in political processes.

Given the government's ambition for digital transformation goals as outlined above, this research focuses on whether OGD, an emerging feature of digital government strategies, has been used as a strategic resource to advance these ambitions. The study reflects on the potential presented by open data for the South African government to be innovative in improving internal efficiency, designing new service delivery offerings that respond to the needs of the citizens, and fostering innovation through collaboration with private and civil society sectors. The research is located within a small community of open government champions.

1.3 Research Problem Statement

The literature on public management, particularly in the open government discourse, refers to the transformative role and the socio-economic potential of open data in fostering open government as a step toward the maturing of digital government (Plantinga & Adams, 2019). OGD is also considered a critical component of a citizen-centred approach to digital government. This assertion, however, does not negate the fact that there are potential challenges and risks associated with OGD initiatives (Smith & Reilly, 2013).

Despite the commitment made in the National White Paper on ICT (2016), the South African government has not developed a framework for implementing open governance and open data; this may be attributed to the frequent changes in political

leadership in the departments responsible for this policy area, leading to policy incoherence. Notwithstanding its OGP commitments, the country does not have a national open data policy, and efforts by the government to develop an integrated national open platform to date have not been successful.

There is a significant body of evidence that demonstrates the correlation between the release of open data (in re-usable formats) and innovation, (Manyika, Chui, Groves, Van Kuiken, & Doshi, 2013). The South African government has not made any demonstrable effort to use OGD to spur innovation for service delivery. This is further demonstrable in the low levels of open data practices across government (van Schalkwyk, Willmers, & Schonwetter, 2015). There are, however, some pockets of open data initiatives that have been implemented at national, provincial, and local governments, some of which have resulted in successful innovations. This research explores several concepts involved in public sector modernisation, including public sector innovation, open government, and open government data and how these concepts interact in a dynamic way to achieve improved governance.

1.4 Significance of the Study

Academic literature extensively discusses innovation within the private sector; however, exploring innovation's potential as a viable tool for governments remains an area that warrants further investigation. (Gasco-Hernandez, Sandoval-Almazan, & Gil Garcia, 2017). Based on the insights gained from reviewing the literature, this study will attempt to contribute to filling this knowledge gap. The study explores Open Government Data as an innovation at the intersection between digital government and public management. It aims to answer whether OGD, as a public sector innovation, can offer practical and theoretical insights on improving digital government strategies, especially in South Africa. This study is relevant to the innovation studies discipline as it elevates the rigour of the analysis of innovation by deploying open innovation as an innovation management concept in the public sector innovation management space. At the same time, the study expands this framework, which traditionally has been applied in the private sector, into the public sector, thereby expanding avenues for exploring innovation in the public sector.

1.5 Delimitations of the Study

- The study is limited to the open data initiatives that are or have been, part of South Africa's OGP plans.
- The study will be limited to the opinions of direct participants in the government's open data initiatives and digital government policies; the views of other participants on these initiatives will not be sought.
- Since the participants in the study have already been exposed to innovation and open government discourse, their understanding of the subject matter may not be used to generalise the existence of an understanding of these concepts across the public sector.
- The study will be limited to observing open government data initiatives as innovative processes. While this will be done in the context of the respective department's organisational mandates, this study will not focus on the effectiveness or soundness of those government departments' policies and strategies.

1.6 Assumptions

- The research will rely significantly on contributions from key participants, who are public sector officials involved in government open data initiatives.
- It is assumed that the participants are experts in this area. Their views on the open data process will provide a relatively comprehensive picture of open data practice in South Africa.
- The participants' availability and willingness to participate honestly will significantly impact the research's findings.

1.7 Definition of Key Terms

i. **E-Government:** The use of ICTs to more effectively and efficiently deliver government services to citizens and businesses. It is the application of ICT in government operations, achieving public ends by digital means (United Nations Department Economic and Social Affairs, 2023).

ii. **Digital Government:** "The use of digital technology as an integrated part of government modernisation strategies to create public value" (OECD, 2016).

iii. **Digitalisation**: “The use of digital technologies to change a business model and provide new revenue and value-producing opportunities.” (Gartner, 2022).

iv. **Gartner Digital Government Maturity Model**: A tool for government agencies to diagnose their ability to use information technologies to improve performance and prepare strategies as well as action plans to move toward the desired stage of technology appropriation and a way of generating public value (Abu Bakar, Ibrahim, & Yunus, 2020).

v. **Innovation Diffusion:** “The process by which innovation is communicated through certain channels over time among members of a social system.” (Rogers, 2003).

vi. **Innovation:** “The implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organisation method in business practices, workplace organisation or external relations.” (OECD, 2018).

vii. **Open Government:** “A culture of governance based on innovative and sustainable public policies and practices inspired by the principles of transparency, accountability and participation that fosters democracy and inclusive growth.” (OECD, 2016).

viii. **Open Government Data:** “Non-privacy restricted and non-confidential data produced with public money and made available without any restrictions on their usage and distribution.” (Ruijer, Detienne, Baker, Groff, & Meijer, 2019).

ix. **Public Sector Innovation:** “Implementation by a public sector organisation of new or significantly improved operations or product.” (OECD, 2012). “The development and implementation of a novel idea by a public sector organisation to create or improve public value within an ecosystem” (Chen, Walker, & Sawhney, 2020) (Chen, Walker, & Sawhney, 2020)

1.8 Research Objectives

To investigate the concept of Open Government Data as an innovation with the potential to accelerate the achievement of a digital government in South Africa.

1.9 Research Questions

Research Question 1: What is the state of OGD adoption in the South African government?

Research Question 2: What factors encourage the use of OGD in the South African public sector?

Research Question 3: What is the prevalence of OGD-driven innovations in the public sector, and how do these contribute to digital government?

1.10 Outline and Structure of the Report

This research study will consist of six chapters, briefly outlined in this section.

Chapter 1: Introduction

This chapter includes the introduction, background and purpose of the study. It also provides the research questions and problem statement.

Chapter 2: Literature Review

This chapter provides a review of the literature relevant to the study. The literature on OGD will be reviewed extensively. Open innovation literature will also be reviewed as the theoretical framework that underpins the study. It will outline the theory's background, theoretical arguments, and applicability to the study.

Chapter 3: Research Methodology

This chapter explains the research methodology that will be used to help understand the role of open government data in public service innovation.

Chapter 4: Presentation of Results

The chapter will present a summary of the data collected from the interviews. This will include comparing the findings to the broader environment to provide a detailed contextual description.

Chapter 5: Analysis of Results and Discussion

This chapter will present the research findings contrasting with the literature and insights from the research process.

Chapter 6: Conclusions and Recommendations

This research will present the key research findings and provide possible future research questions for exploration in this area of study.

1.11 Conclusion

The primary purpose of this research is to explore the implementation of OGD as an innovative process and argue for its potential value in advancing digital government. The study explores several concepts in public sector modernisation, including public sector innovation, open government, and open government data. At the core of the study is the need to explore how these concepts interact dynamically to achieve improved governance.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of relevant topics related to the subject to analyse the stated problem from a scholarly perspective. Several peer-reviewed publications on open innovation theory have been considered for the research. The review will be divided into subtopics to critically engage the literature on open innovation and its applicability in the public sector, especially in open government data innovation processes. The review will first look at open innovation in general, exploring its fundamental tenets and application in the public sector.

Additional theoretical concepts and frameworks linked to the study, namely (1) Public Sector Innovation, (2) Digital Government Theory, and (3) Open Government Data, will be briefly explored. Regarding the study on OGD, these theories are critical and will, therefore, be explored in the context of public service reform. Finally, the emerging literature on applying open innovation in the context of open government data will be summarised.

One of the most important linkages between the open innovation theory and these theoretical frameworks is that "open innovation is considered to be a continuum with varying degrees of openness, which is essential in enabling innovation in the public sector environment" (Huizingh, 2011, p. 3). Furthermore, open innovation measurements are multidimensional; they also allow for dimensions that are not correlated (Huizingh, 2011). Open innovation theory also allows multi-directional flows of knowledge internally and externally, making it an ideal framework for the study.

2.2 Innovation: A Brief Background

A historical background on innovation will be explored to contextualise open innovation. According to Fagerberg et al. (2013), Schumpeter introduced the concept of innovation and argued that innovation is the source of economic growth. In his early theories, Schumpeter focused on innovation by individual entrepreneurs and their economic effect, referred to as Schumpeter Mark I. In Schumpeter Mark II, however, there was a realisation that more attention was necessary to understand large firms'

innovation processes. Consequently, Schumpeter's Mark II Theory is credited with developing innovation concepts at large firms (Fagerberg et al., 2013).

Peter Drucker (Drucker, 1985, p. 17) delineated innovation as a distinct instrument entrepreneurs use to capitalise on shifts in circumstances, viewing them as opportunities to establish novel enterprises or services. Innovation constitutes the role of entrepreneurship, manifesting within established enterprises, public service entities, or nascent ventures initiated by solitary individuals within domestic settings (Drucker, 2002, p. 4).

Schumpeter (1942), who remains a foundational theorist in entrepreneurial studies with a focus on innovation-driven entrepreneurship as cited in Śledzik (2013), presents a definition which posits innovation as a continual process of industrial mutation, perpetually reshaping the economic framework from within by dismantling the old structures while concurrently engendering new ones (Śledzik, 2013, p. 90).

Gault (2018) proposed a general definition of innovation as

> “Implementing a new or significantly changed product or process. A product is a good or a service. The process includes production or delivery, organisation, and marketing processes. When made available to potential users, a new or significantly changed product is implemented. New or significantly changed processes are implemented when they are brought into actual use in the operation of the institutional unit, including making products available to potential users” (Gault, 2018, p. 617).

In the Oslo Manual 2018, innovation is expansively defined as “the introduction of a new or enhanced product, process, or a combination thereof, which markedly diverges from the unit's prior offerings and is made accessible to prospective users (in the case of products) or implemented by the unit (in the case of processes)” (OECD, 2018, p. 20).

The Oslo Manual additionally delineates categories of innovation based on their focus: those that modify the firm's products (product innovations) and those that alter the firm's operational procedures (business process innovations) (OECD, 2018, p. 3).

Gault (2018), on the other hand, also identifies the four types of innovation, namely: (1) Product innovation, (2) Production or delivery innovation, (3) Organisational innovation, and (4) Marketing/communication innovation (Gault, 2018, p. 618).

What is standard across the definitions of innovation from theorists is that innovation is at the centre of entrepreneurship and the heart of societal transformation; it enables creative solutions to societal problems, enables economic growth and improves the overall quality of life in society. The significance of innovation within society underscores the need for comprehensive academic inquiry into this phenomenon, particularly concerning its fundamental principles applicable within the public sector domain, which is the primary focus of this research endeavour. As summarised in the academic literature reviewed in this section, the theory of innovation serves as a starting point for the arguments that will be presented in this research paper.

2.3 Understanding Open Innovation

According to Gassmann and Enkel (2004), the globalisation of technologies and innovation, coupled with new information communication technologies, has created a pressing need for organisations to develop mechanisms to adapt. This, coupled with diminishing resources, escalating research and development costs, and shorter innovation cycles, puts pressure on companies to explore innovation strategies (Gassmann & Enkel, 2004).

Chesbrough (2006) argues that the open innovation theory is the antithesis of traditional industrial innovation. Traditional industrial innovation focuses on internally developed products through internally orientated value chains, where the company relies on internal capacity from research development to product distribution. Open innovation operates on the premise that to remain competitive, a solitary entity cannot pursue innovation independently; instead, it must collaborate with various stakeholders, from suppliers to customers. (Bigliardi et al., 2021, p. 1131).

An alternative perspective on open innovation is to eschew a dichotomous classification of open versus closed approaches. Instead, it is conceptualised as a continuum wherein organisations can embrace varying degrees of openness to fulfil their innovative objectives (Dahlander & Gann, 2010).

Open innovation is a novel concept in innovation studies that has drawn much interest in theory and practice. In earlier works, Chesbrough (2006, p. 1), widely regarded as the concept's originator, delineated Open Innovation as the strategic leveraging of intentional knowledge inflows and outflows to facilitate internal innovation processes while broadening the scope of external innovation utilisation in markets.

The open innovation process integrates internal and external ideas within systemic frameworks (Gassmann & Enkel, 2004), establishing innovation approaches (West, 2017). Open innovation allows for collaboration with a more diverse team, and ideas can be enhanced by a more comprehensive array of viewpoints (Loren, 2011).

The literature has identified another school of thought that argues against the view that open innovation is a new theory. These scholars contend that the principles underlying open innovation were delineated and scrutinised by researchers well before Chesbrough introduced the term and model (Orlova, 2019).

Bénézech (2012), for instance, states that firms have adopted inbound and outbound knowledge sources through internal R&D and external agreements for decades. Vanhaverbeke and Roijakkers (2012) also argue that although Chesbrough introduced open innovation as a new concept, innovation processes within many companies have always been open to some extent.

Critics of the theory highlight the drawbacks associated with openness, asserting that it may lead to the exposure of resources for external exploitation, posing challenges in protecting intellectual property and appropriating the benefits derived from innovation (Dahlander & Gann, 2010).

2.4 Why the Open Innovation Approach?

For this research, we have selected the open innovation approach because it provides the compelling reasons that drive companies towards flexible open innovation approaches. Furthermore, the theory has informed the development of frameworks and strategies for innovation in organisations that move away from the closed innovation paradigm by involving external entities to enhance their innovation processes (Gassmann & Enkel, 2004). As a paradigm, open innovation attempts to account for anomalies not well explained by the existing paradigms. One of these

anomalies is the difficulty in capturing spillovers from industrial research and development in innovation studies (Chesbrough, 2006).

The proposition is that internal and external knowledge is equally crucial for innovation. Secondly, unlike the closed innovation model, where the business model played a less significant role compared to research and development outputs in the overall success of the business in open innovation, the business is re-shaped and altered to respond to the open innovation inflows and outflows of ideas, therefore, creating a focus on business model innovation parallel to product innovation.

Gassmann and Enkel (2004) refer to the three open innovation archetypes: outside-in, inside-out, and coupled process. Outside-in involves enriching the company's internal knowledge by drawing on external knowledge. The term "inside-out" pertains to generating profits by commercialising ideas by selling intellectual property (IP) and leveraging technology proliferation to disseminate ideas to external collaborators. The coupled process involves both outside-in and inside-out by creating partnerships.

Traditional innovation processes have not been able to assist companies in creating value for research and development outputs that are developed as spillovers in the innovation process. These are often shelved and sometimes licensed to others, which leads to the benefits of such spillovers accruing to other companies and not the company that developed the idea. Therefore, open innovation begins to provide a framework for how such spillovers can generate new revenue streams for companies and facilitate an open-up innovation approach.

Another contribution of the open innovation theoretical framework is its ability to assist companies in understanding the benefits of externally searching for ideas and technologies, leveraging and exploiting partnerships with customers, suppliers, and universities to get the best ideas out there and create new and better products.

The open innovation concept is operationalised in the International Business Machines (IBM) Industry Solution Lab Zurich. IBM has not only focused on investing in research and development but has coupled it with open innovation processes through customer engagement and research partnerships (Gassmann & Enkel, 2004). Chesbrough also succinctly highlights the IBM PC example as a concept of open innovation. The IBM PC, which was supposed to be an IBM design and architecture, ended up being a

successful open product due to the involvement of Microsoft and Intel (Chesbrough, 2017). This point highlights the relationship dynamism and flexibility open innovation brings to a business's innovation process.

Proctor & Gamble's (P&G) (Lee et al., 2012) research and development (R&D) strategy exemplifies a renowned case of open innovation. P&G has embraced numerous external channels for innovative ideas. The "connect and develop" model is predicated on the notion that external sources of ideas frequently hold considerable value compared to internal ones or can synergise with internal concepts to generate substantial value.

Samsung is also credited with pursuing the open innovation strategy of allowing global enterprises to provide diverse smartphone software. The Samsung Android OS is an open platform that allows participants to freely enter and share created value (Outhay, 2019). Samsung (Ramachandran, 2020) asserts that fostering open innovation is deeply ingrained within our corporate ethos, extending from initiatives like Android to SmartThings. We have consistently committed to platforms that facilitate innovation across various companies.

Gassmann and Enkel (2004) discuss the core competencies for implementing the open innovation approach. These competencies include absorptive capability, which refers to the organisation's ability to identify and translate external knowledge into viable commercial products.

Chesbrough (2017) argues that for open innovation to succeed as an innovation approach at the firm level, there is a need for innovative academic research and business schools to develop a feedback loop between theoretical research and the world of practice. This will ensure that open innovation research is directed towards the practice and that managers can reflect on academic approaches that benefit strategic innovation management at the firm level.

After reviewing the open innovation paradigm in the context of innovation studies, it is safe to state that the hypothesis derived from the open innovation theory is that opening the innovation process is directly related to innovation success. However, further research and empirical studies are needed to test such a hypothesis.

2.5 Public Sector Innovation

Public Sector Innovation (PSI) emerged from public management as a response to the call for public administrations to develop cost-effective ways of delivering services whilst ensuring societal well-being (OECD, 2012).

Ernst & Young (2019) presents additional motivations for governmental innovation, including:

(i) Enhanced resource allocation: Innovation can enable governments to fulfil their obligations to citizens while judiciously utilising resources.

(ii) Competitive advantage: The public sector can stimulate innovation within the broader economy through strategic regulation and early adoption, positioning jurisdictions favourably for Foreign Direct Investment (FDI).

(iii) Credibility: In an era of rapid knowledge creation and utilisation, the public expects governments to remain abreast of advancements and demonstrate adaptability.

(iv) Talent retention and attraction: Providing engaging work and access to cutting-edge opportunities can be primary incentives for attracting millennial talent. By offering such opportunities, the public sector can compete effectively for top talent, transcending the limitations imposed by compensation alone.

According to Gow (2014), there are theoretical approaches to PSI, most of which are concerned with how innovations are adopted and how to measure if innovations in the public sector are beneficial. Other scholars are interested in defining PSI's top-down or bottom-up typologies. The essence of the public sector innovation theory is that it has elements of predictive power. The theory focuses on looking for patterns that, if accurate, can assist in understanding the innovation process and identifying the independent variables causing innovation in public sector organisations (Bloch & Bugge, 2013).

Windrum in Gault (2018) provides the different types of public sector innovation as follows:

- Conceptual innovation is the development of new world views that challenge assumptions that underpin existing service products, processes, and organisational forms.
- Policy innovation at the ministerial level comes in two forms: incremental innovation based on policy learning by the government and radical innovation sparked by conceptual innovation.
- Systemic innovation involves new or improved ways of interacting with other organisations and knowledge bases. Here, the linkages that are part of the systems approach and the capacity to measure flows become essential.

2.5.1 Public Sector Innovation Frameworks

Several documents by international organisations and private companies have attempted to define a framework for innovation in the public sector context and provide its essential characteristics. For this research, we have looked at (a) the United Nations Department of Economic and Social Affairs report on Innovations in the Public Sector, (c) the OECD Public Sector Innovation Framework and (c) the EY report on public sector innovations.

The UNDESA report specifies various factors for the success of the public sector, such as “(a)increased demand and awareness on the part of the citizenry; (b)flexible civil service system; (c)strong institutional capacity to withstand change. (d)willingness to change traditional methods of operation;(e) presence of resources. (f)resilience factor of the civil servants and (g)visionary leadership.” (Department of Economic and Social Affairs , 2005, p. 18).

The EY (2019) report on public sector innovations, on the other hand, provides building blocks for innovation maturity, namely, strategy, governance, culture, process, people and ideas. The OECD Public Sector Innovation Framework delineates organisational characteristics that influence innovation within the public sector, including the generation and dissemination of ideas, empowerment of the workforce, negotiation of regulatory frameworks and procedures, and the appraisal of organisational structure (OECD, 2014).

For this research, the working public sector innovation framework, as borrowed from existing frameworks, includes (a) the existence of a demand from the citizens for new

or improved service delivery, (b) a public service that is in tune with citizen needs and willing to change in order to improve, (c) the presence of leadership willing to lead public service organisations to the desired change and innovation champions across the system with innovation management competence.

2.5.2 Innovation Ambition

Like in the private sector, having a clear ambition to manage innovation effectively in the public sector is essential. Ambition in the public sector can be interpreted as the extent to which the innovation stretches government practices beyond its current baseline." Ambition in this context captures the potential of an innovation to have this transformative effect" (Open Government Partnership, 2011).

For this study, the research will utilise the Innovation Ambition matrix, which provides a framework enabling managers to assess the spectrum of initiatives undertaken within the organisation. This matrix facilitates examining the number of initiatives pursued within each domain and the allocation of investment toward various types of innovation (Nagji & Tuff, 2012, p. 10).

Within the innovation ambition matrix, a collection of projects undergoes evaluation predicated on the degree of novelty in both their solutions (along the x-axis) and the markets they target (along the y-axis). This matrix classifies innovations into one of three distinct categories, as delineated below:

a) Core innovations are incremental enhancements to existing solutions and challenge areas. They are the safest form of innovation and provide moderate returns.
b) Adjacent innovations are existing solutions that have been enhanced or applied to new challenges. This type presents a middle level of risk and reward.
c) Transformational innovation refers to new offerings or businesses that serve new markets or customer needs. It is generally the highest-risk form of innovation that can offer the highest impact by creating differentiated new solutions.

Given the absence of traditional markets within the public sector context, Holden et al. (2018) adapted the matrix by replacing the "market" dimension with "challenges" in the Ambition Matrix. Despite this modification, the matrix retained its operational utility,

wherein the most transformative innovations address novel challenges through entirely innovative approaches (see Figure 2).

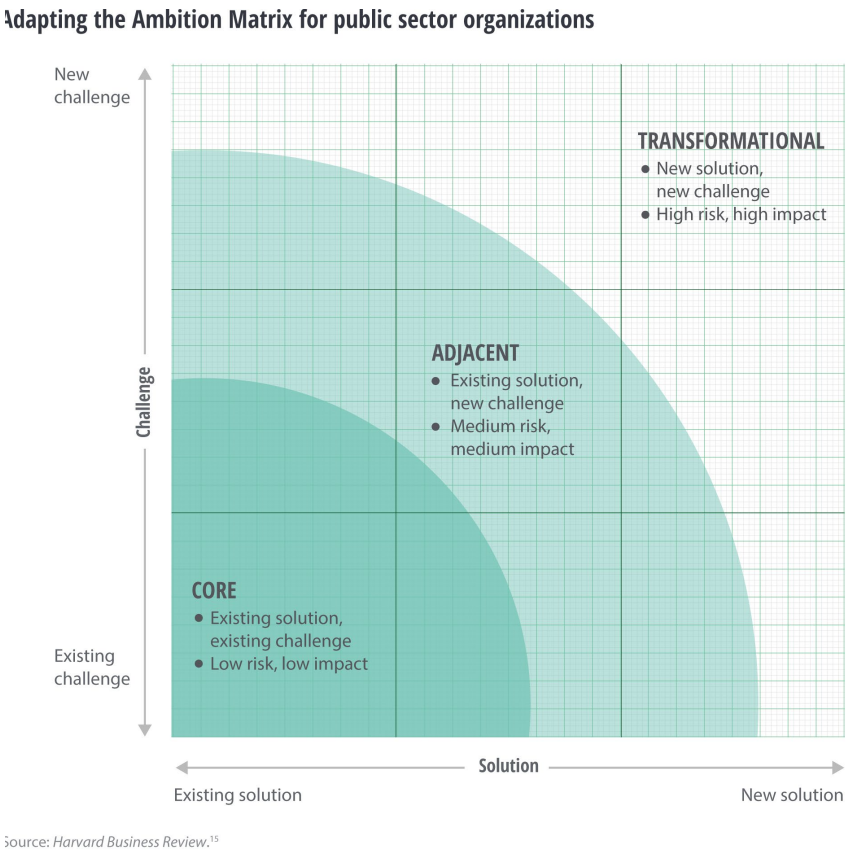


Figure 1 Adapting the Ambition Matric for Public Sector Organisations (Source: Deloitte Insights 2018)

2.5.3 Public Sector Open Innovation Approaches

Bekkers and Tummers (2018) argue that open innovation is prominently featured because of related ideas such as networked governance collaborative innovation, which are principles that also underpin the open government discourse. PSI must focus on the civic results that follow the effects of innovation on citizens and the quality of socio-economic benefits to the communities.

Gasco-Hernandes et al. (2017) introduced the term public sector open innovation to distinguish it from open innovation in the private sector. Scholars argue that innovation within the private sector predominantly emphasises new product development, whereas innovation within the public sector typically does not entail the creation of

physical artefacts (Bommert, 2010). Private sector innovation is often motivated by the pursuit of competitive advantages and the generation of increased revenues. Conversely, innovation within the public sector is oriented towards enhancing service delivery performance and adding value to public welfare (Lee et al., 2012).

Although open innovation theory was initially conceptualised around industrial innovation, in recent works, Chesbrough (2017) has developed it further to include open innovation in the public and non-profit sectors.

There has also been a growth in the number of public sector entities undertaking open innovation initiatives; these include the Open Government Initiative by the government of the United States of America and the Open Government Data Portal implemented by the government of Singapore (Kankanhalli et al., 2016). Accordingly, scholarly writings that explore this topic have significantly increased.

Under President Obama's leadership, the United States government introduced one of the first open innovations in the public sector called Challenge.gov. The guiding tenets underlying the new platform encompass mechanisms aimed at facilitating the capacity (1) to introduce novel ideas from unconventional origins, thereby fostering significant advancements in persistent social and technological issues, and (2) to contribute towards addressing societal needs alongside scientific and technological challenges (Mergel & Desouza, 2013, p. 2).

In the United Kingdom, the National Endowment for Science, Technology, and the Arts (NESTA) inaugurated the Public Services Lab, tasked with exploring innovative methodologies for enhancing the efficacy of public services while reducing costs. Specifically, the Lab endeavours to conduct experimental trials of radical theories to demonstrate how innovative initiatives can enhance public services and positively impact local communities (Lee et al., 2012)

Another perspective posited to elucidate the proliferation of open innovation within the public sector pertains to the increasing complexity of public endeavours, which have evolved into "wicked problems", which are multifaceted issues that defy resolution by a singular entity and entail numerous layers of complexity. (Gasco-Hernandez et al., 2017).

Bommert suggests collaborative innovation as a mechanism that opens the innovation cycle and taps into innovation resources across borders (Bommert, 2010). Collaborative innovation is delineated as an outwardly oriented strategy for innovation and problem-solving, predicated on leveraging the resources and competencies of external networks and communities to accelerate or enrich the pace and outcomes of innovation (Nambisan, 2008, p.11).

According to Bogers (2011), collaborative innovation is an area of open innovation that emphasises the collaborative development of innovation, co-creation, and complementary partnerships.

To conclude this subsection, we provide a definition of public sector open innovation derived from the academic literature reviewed that will be used in this study. Public sector open innovation is actions by governments leveraging resources and knowledge contributed by peer governments, citizens, and private sector organisations to develop innovative policies and programmes that solve problems faced by citizens.

Public sector innovation typically unfolds within the policy cycle framework, wherein a political mandate directs agencies to expand, discontinue, or institute a new public service. In response to this mandate, public agencies are tasked with executing the necessary adjustments to their service delivery mechanisms (Mergel & Desouza, 2013).

Open innovation processes within the public sector commonly involve crowdsourcing and engaging external professionals and amateur problem-solvers (Gasco-Hernandez et al., 2017). While not a universal solution for organisational innovation, crowdsourcing represents a potent approach for addressing intricate challenges that have remained unresolved through internal and individualised methods (Mergel & Desouza, 2013). Crowdsourcing additionally facilitates the harnessing of collective intelligence to address intricate problems in instances where there is a deficiency in either resources or expertise (Mergel & Desouza, 2013).

When looking at open innovation in the public sector, it is essential to locate it within a correct governance framework because the governance framework shapes the approach to innovation. Traditional governance frameworks often provide challenges

for open innovation because of the formal rules, multi-layered hierarchies, and organisational silos. It is argued that innovation in the New Public Management is a government-led form that relies on methods borrowed from the private sector (Lee et al., 2012).

However, for open innovation to be successful, the government organisation's innovation capacity must be linked with the innovation capacity of the network in which this organisation operates (Bekkers & Tummers, 2018). This brings us to the concept of networked governance, which is based on emerging patterns of governance and service delivery (Lee et al., 2012). According to Lee et al. (2012), one of the paramount attributes of networked governance is the recognition of the public as co-producers of services and innovation. This changes the role of the citizens as they become active contributors to solving societal challenges (Bekkers & Tummers, 2018).

Open innovation within the public sector necessitates governments to enhance their receptivity to citizen input compared to previous practices and to engage users of public services actively (Kankanhalli, Zuiderwijk, & Tayi, 2016).

When grappling with open innovation, public agencies necessitate heightened flexibility in procuring solutions. They must embrace a significantly broader spectrum of solution providers, albeit with limited assurance regarding the utility or feasibility of solutions proposed by citizens (Mergel & Desouza, 2013).

Scholars offer varying approaches and configurations of public sector open innovation. Lee et al. (2012) provide the top-down versus the bottom-up approach, whilst Bekkers and Tummers (2018) suggest differing configurations of collaboration between citizens and government based on degrees of willingness to undertake collaborative innovations.

Top-down versus Bottom-Up approach

In the top-down approach, the government assumes a predominant role as the leading partner in innovation endeavours. The objective is to assemble external partners possessing specialised capabilities and amalgamate their contributions (Lee et al., 2012). Contrastingly, the bottom-up approach entails individuals known as "information leaders" spearheading innovation initiatives. Leadership within the

network is typically decentralised among its members, with the government assuming a subordinate role.

It is important to juxtapose the top-down vs bottom-up approach with what is referred to as the inside-out or outside-in approach in the private sector. As discussed in the earlier sections, outside-in deals with the organisation's deliberate strategy to use outside knowledge to boost its internal knowledge; in this sense, the organisation is very involved in the innovation process. In the public sector, this would entail innovation within the government agencies whilst leveraging the external partnerships as envisaged in the top-down approach. The alternative is the inside-out approach, which entails taking ideas or IP out to the network or partners and allowing those partners to generate new products or services. This is more in line with what is referred to as the bottom-up approach, which often involves intermediaries such as civic tech agencies that use government information to develop products or services for public benefit.

Collaborative Innovation Approach

Bekkers & Tummers (2018) have also come up with a method to predict the kind of collaboration configurations that are possible, using the following dimensions: (1) a high versus a low degree of willingness at the government side and (2) a high versus a low degree of willingness at the citizen side. As a result, four configurations of collaboration emerge, namely:

(a) Let us dance
(b) Flogging a dead horse
(c) Lone ranger
(d) Wasteland

The Let's Dance configuration comes closer to the "coupled open innovation" strategy, also called collaborative innovation in the public sector. Coupled open innovation entails co-creating the innovation supported by different parties and is characterised by the combination of inbound and outbound open innovation processes (Pikkarainen et al., 2020). As a specific type of open, collaborative innovation emphasises knowledge sharing as the primary driver of successful innovation (Bogers, 2012).

Based on the open innovation approaches discussed above, what is clear is that the willingness or interest of government and citizens to collaborate in innovation must be mutually beneficial to achieve success. Even when one leads and the other follows, it must be based on the strength of collaboration and understanding of mutual interests and benefits. Implicit in this is the requirement for the explicit location of the leadership and or championship of the innovation initiative, whether it is led by the government or by the citizens through civil society, intermediaries and or information leaders.

2.6 Digital Government Theory

The New Public Management (NPM), a theory introduced in the 1980s as the main driver for public sector reform, aimed at introducing a new public management culture that was results-driven, like the private sector (Cordella & Bonina, 2012). Under the NPM, ICT was considered to have a transversal role in critical aspects of the reform approach, such as service delivery, integration and coordination, and innovation (Cordella & Bonina, 2012). The focus and orientation were on monetary value and customer service techniques mimicked from the private sector; whilst efficiency was achieved, the public service could not assist the political leadership in delivering on the electoral mandate (Cordella & Bonina, 2012).

As a result of the failures of NPM, digital government first emerged in the United States under President Clinton in the 1990s, intending to leverage ICT for economic growth and government reform (Fountain, 2016). Under the Blair administration, transformational government was introduced in the United Kingdom in the early 2000s. Its fundamental tenets were streamlining service provided to citizens and leveraging IT to achieve the so-called joined-up government (Fishenden & Thompson, 2012).

While the preceding chapter defined Digital Government in general terms, this chapter is crucial for expanding on the concept's definitions from a theoretical point of view.

As outlined by Fountain (2012), digital government encompasses the expansive domain of governance within the information age, encompassing various facets such as service delivery, public management and administration, policymaking, analytical and regulatory processes, and notably, the diverse modalities of civic engagement facilitated by information and communication technologies (ICT). Gil-Garcia et al. (2014) delineate Digital Government (DG) as the public sector's utilisation of

information and communication technologies by the public sector aimed at enhancing information dissemination and service provision, fostering citizen engagement in decision-making processes, and enhancing accountability, transparency, and efficiency of government operations. Digital government involves the utilisation of information technology to facilitate governmental functions, involve citizens, and deliver governmental services (Scholl, 2020, p. 7).

The study of digital government has led scholars to explore a variety of analytical frameworks; for this research, only two will be briefly discussed, namely Public Value and Digital Era Governance (DEG), to analyse the role of ICT in the public administration reform agenda.

Public Value theory argues for the re-orientation of public servants beyond pursuing efficiency and towards generating values desired by the citizenry as a collective (Zhang et al., 2015). According to Cordella et al. (2012), the public value paradigm contends that citizens do not only behave as customers as conceived in NPM theory, but the organisation of public administration also needs to adapt to this change, responding to the needs of the population by designing services from a citizen's point of view (Lomonosov, 2017).

On the other hand, the Digital Era Governance (Digital Era Governance) is characterised by a reversal of the NPM by re-aggregating public service under direct government control around the citizen while responding to the spread of digital technologies (Fishenden & Thompson, 2012).

Digital Government scholars have used the public value theory because it helps them understand the immense potential of ICT technologies to provide platforms that comprehensively address citizens' needs. The contention posits that Information and Communication Technology (ICT) solutions empower governments to furnish citizens with avenues for engagement, augmenting the efficacy of participation and collective decision-making processes, monitoring progress and performance, and ensuring accountability and equity (Zhang et al., 2015).

On the other hand, Digital Era Governance is credited with "correctly highlighting the confluence between emerging internet technologies and emerging technology-driven

behaviours that result in citizen's expectations around new channels for citizen-government interaction" (Fishenden & Thompson, 2012).

When discussing Digital Government, it is critical to appreciate that theoretically, “government is viewed as a set of open information platforms that can be adjusted to specific goals and objectives of certain government, corporate or civic organisation” (Lomonosov, 2017).

Fishenden and Thompson (2012) contend that the effective integration of digital technologies within public administration necessitates the administrative paradigm accommodating the imperatives of openness and digitisation prior to the widespread adoption of digital technologies. This implies that there are certain stages and levels to achieving the state of being fully digital.

Several frameworks have been formulated to delineate the trajectory towards attaining digital government. What is apparent in all of them is that distinct characteristics make a government digital; these include increasing government transparency, improving the quality of public services and stimulating innovation in public administration (Lomonosov, 2017). To achieve this, scholars developed concepts like Open Architecture, borrowing from the private sector innovation, to enable government open platform models, which avail services to citizens at their point of need (Fishenden & Thompson, 2012).

The developments in digital government are also highly influenced by specific movements, such as the Access to Information movement, which advocates for access to data, and the Open Data movement, linked to the Open Government Partnership established by President Obama (Fountain, 2016). However, other proponents of open data make a case for the centrality of data in digital government because of its potential to enable (a) the development of public service applications, (b) the analysis and visualisation of government datasets to better understand solve socio-economic challenges and, (c) making governments more transparent and accountable (Lomonosov, 2017).

Therefore, to improve the quality of digital government services to citizens, a government must pursue specific strategic objectives, including opening up government data and using the digital maturity framework as a guide.

2.6.1 Digital Government Indexes

International organisations have devised multiple digital indices to evaluate the status of digital government from various angles. These indices encompass assessments of online service provision, telecommunications infrastructure, human capital, citizen engagement, research infrastructure, innovation, governmental regulations and institutions, and private sector engagement in GovTech initiatives (Dener et al., 2021).

The United Nations E-Government Survey has been published biennially by the United Nations Department of Economic and Social Affairs (UNDESA) since 2001. The survey evaluation assesses the e-government efficacy of UN member states, concentrating on aspects pertinent to online service provision. These include comprehensive government strategies, open government data initiatives, citizen engagement efforts, multi-channel service delivery mechanisms, mobile service accessibility, utilisation rates, digital disparities, and collaborative partnerships leveraging ICTs for innovation. (Department of Economic and Social Affairs, 2022). The model comprises five stages, encompassing emerging presence, enhanced presence, interactive presence, transactional presence, and fully integrated presence (Almuftah, Weerakkody, & Sivarajah, 2016).

The World Bank's GovTech Maturity Index (GTM) comprises four components, each corresponding to a distinct GovTech focus area: core government systems, public service delivery, citizen engagement, and GovTech enablers. The GTM Index assesses a country's position along the GovTech trajectory by evaluating advancements across these four GovTech focus areas (Dener et al., 2021).

The OECD Digital Government Index (DGI) evaluates the comprehensiveness of digital government strategies and initiatives by assessing the adoption of digital technologies and data utilisation within central and federal public sector organisations through a whole-of-government approach. This evaluation is grounded in the six dimensions outlined in the OECD Digital Government Policy Framework: (1) digital by design, (2) data-driven public sector, (3) government as a platform, (4) open by default, (5) user-driven, and (6) pro-activeness. The DGI functions as a composite index, ranging from 0 to 1, where a value of 1 denotes the highest level of digital government maturity, while 0 indicates minimal progress or fragmentation across organisations (OECD, 2019)

2.6.2 Gartner Digital Government Maturity Model

As indicated earlier, when a government chooses the path of digital transformation, they do so within a defined framework; in most instances, the Digital Government Maturity Model (DGMM) is utilised as a diagnostic tool. The DGMM also chart a path towards a desired technology appropriation and increasing public value (Bakar, Ibrahim, & Yunus, 2020).

For this paper, we have adopted the Gartner Digital Government Maturity Model as an analytical framework for assessing the SA government's digital maturity. The main reason for choosing this model is the fact that it is regularly updated, ensuring the provision of top strategic planning and technology trends and tools to assist the government in keeping up to date and remaining relevant in the delivery of public policy goals (Alarabiat & Hujran, 2023).

According to this model, the state of development of the digital government is divided into five (5) levels, which are discussed below.

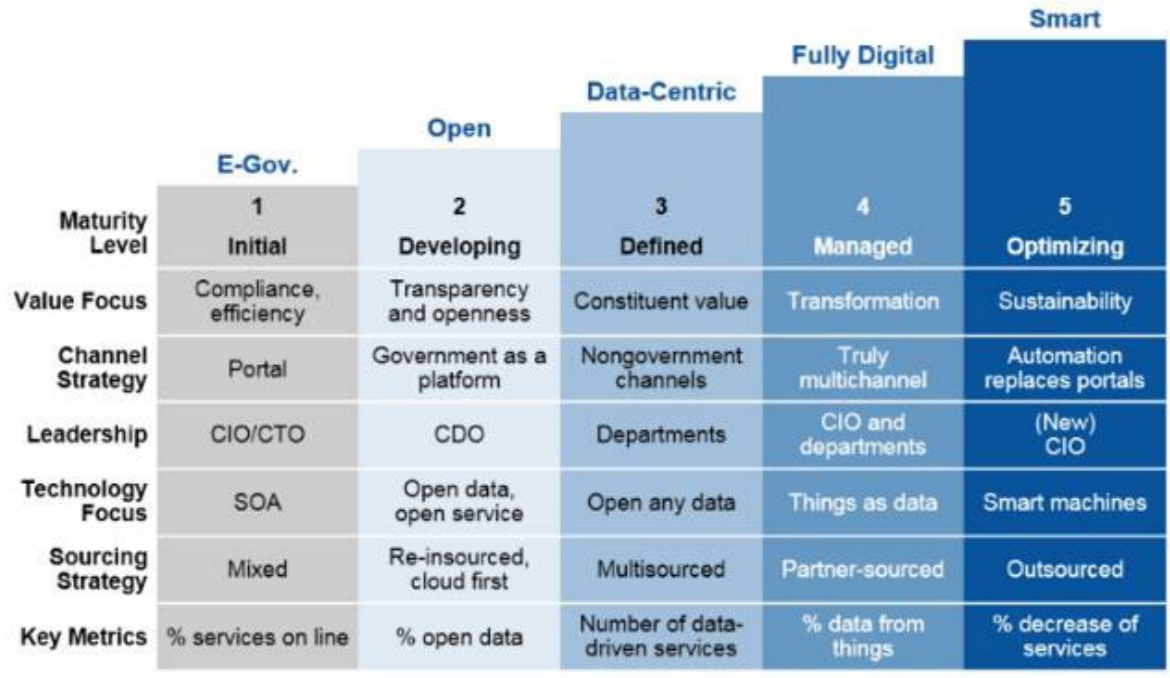


Figure 2 Digital Government Maturity Model (Source- Gartner, 2017)

i. Initial (e-Government). Where the main focus is on digitising existing services for use convenience and cost saving, but data and its uses are silos and extremely limited.
ii. Developing (Open Government). Open Government initiatives offer Digital Government users more significant opportunities and preferences to access information services. Furthermore, Open Government endeavours lead to enhanced transparency within public administration, garnering increased attention and trust from citizens.
iii. Defined (Data-centric). Data assumes a central focus, treating all data as open, offering myriad opportunities for innovation. This encompasses novel methods of aggregating and analysing data within and across agencies, resulting in innovative services and service delivery models.
iv. Managed (Fully Digital). The primary objective is to enhance public administration by optimising vast information resources to facilitate high-quality and timely managerial decision-making. Adhering to open data principles facilitates seamless integration, enhancing services within the government and other organisations. In this context, state-of-the-art extensive data analysis technologies are employed.
v. Optimised (Smart). Digital innovations use massive databases and open data to build deeper analytical systems. Digital transformation is a norm, and innovation processes are predictable and repeatable.

2.7 Digital Government in Practice: South Africa

According to the United Nations E-Government Index, Denmark, Finland, and the Republic of Korea are the top three performing countries. At the same time, the United States is at (10), followed by the United Kingdom (11) (United Nations, 2022). South Africa topped the list in the African continent (65), scoring lower, however, compared to other upper-middle-income countries such as Argentina (41), Brazil (49) and Mexico 62 (United Nations, 2022).

As per the Department of Economic and Social Affairs (2022) report, South Africa has emerged as a leading figure in e-government advancement within the region, boasting an EGDI value of 0.7357 and ranking within the highest rating category. South Africa's National e-Government Strategy and Roadmap was approved by the Cabinet in 2017;

this strategy aims to guide the digital transformation of public services in South Africa (Department of Telecommunications and Postal Services, 2017).

The government has created the South African e-services portal in collaboration with the Department of Digital Technologies (DCDT) and the State Information Technology Agency (SITA). The portal has 120 digitised e-services (State Information Technology Agency, 2017).

2.8 Perspectives on Open Government Data

The Open Government Data (OGD) concept emerges out of the digital government framework but also forms a critical part of the open government political agenda (Ruijer et al., 2018). At the same time, open government as a theory of change has been introduced in the public sector, linking OGD with greater government accountability and improved service delivery (Jelenic, 2019).

Discussing the multiple perspectives through which OGD is analysed is essential to develop an enhanced understanding of the concept. The perspectives that will be discussed are political, technological, and bureaucratic. The economic viewpoint, which contends that Open Government Data (OGD) aims to facilitate entrepreneurial innovation in developing novel products and services and to foster additional economic value through job creation, profitability, and investment, will not be directly investigated in this study. However, it remains a fundamental underlying perspective for comprehending the dynamics of stakeholder interaction within the OGD domain (Thompson, 2011).

2.8.1 Political Perspective

The Political Perspective regarding Open Government Data (OGD) is intricately linked to the principles of Open Government (OG). It views OGD as analogous to an essential entitlement, positing that all citizens should inherently have access to public sector data imbued with significant social value (Robinson et al., 2009, p. 172).

Open government is a relatively new concept in public sector reform discourse, and it denotes a new orientation that emphasises transparency, public participation, and collaboration, leveraging ICT. Open government is considered to address the trust deficit between government and citizens (Ruijer et al., 2019).

In scholarly debate, open government is understood as a management model based on principles of transparency, citizen participation, and collaboration (Ruvalcava-Gomez et al., 2018). Open Government (OG) is intricately linked with digital government, embodying the call for a public sector characterised by increased innovation and collaboration, capable of effectively addressing multifaceted development challenges (Plantinga & Adams, 2019).

According to the Open Government Partnership (OGP) Declaration, which has been signed by up to 78 national governments around the world, open government entails increased access to new technologies for openness and accountability, as well as the development and use of technological innovations by both government and citizens (Open Government Partnership, 2011).

The concept of open government, along with its central tenet, open data, has shaped how the public sector engages with its constituents and fosters innovation (Lathrop & Ruma, 2010).

2.8.2 Technological Perspective

The Technological Perspective is closely intertwined with the concepts of open data. It regards OGD as a technological advancement driven by alterations made by technical personnel in Information and Communication Technologies (ICTs) and in the design of formats, procedures, and standards utilised for managing public sector data (González-Zapata & Heeks, 2015).

2.8.3 The Bureaucratic Perspective

This perspective is closely linked with the concept of government data. It perceives Open Government Data (OGD) as a governmental policy to enhance public service delivery through optimising public sector data utilisation (Heusser, 2013). These alterations aim to achieve enhanced efficiency in data management within the government and, through increased transparency, enhance service provision efficiency and effectiveness (Longo, 2011).

2.9 Understanding Open Government Data

Having outlined the different perspectives through which ODG is viewed in various scholarly debates, it is essential to summarise what OGD entails for this research paper.

It is critical to reflect that OGD initiatives allow new services to be created by external innovators, offering multiple benefits to government agencies and citizens if implemented successfully (Zhenbin et al., 2020).

Public sector entities have utilised IT to disseminate raw data and records, predominantly employing machine-readable interfaces (Kankanhalli et al., 2016). These efforts are geared towards fostering open innovation through open data initiatives.

As the primary custodian of government data, the government opens access to its data repositories, facilitating utilisation by OGD users. These users, often skilled data analysts or application developers, leverage the data independently or with other sources to develop applications or services. These offerings are frequently provided free of charge and may occasionally serve as the basis for revenue-generating enterprises (Dawes et al., 2016).

2.10 Conceptual Framework

As indicated in the preceding sections, this study aims to observe the open government data process as an intersection of public management, digital government, and innovation studies.

In the context of this study, as a government service delivered via new technology applications, we argue that Open Government is an innovation (Wang & Lo, 2016). Furthermore, we argue that Open Government Data initiatives can be classified as government-led open innovations, adopting the inside-out open innovation strategy (Yang & Kankanhalli, 2013).

This is especially true when considering that open government data initiatives in the context of digital government transformation have changed the way governments leverage collective intelligence to solve public problems (Mu & Wanga, 2020, p. 2).

Government agencies share their data to enhance external innovators' collective resources to innovate public services (Zhenbin et al., 2020).

The study considers digital government an enabler for achieving a government's political and social objectives. The analytical framework scrutinises digital government through managerial, political, and legal lenses. Managerially, it delves into the repercussions of technology integration on service delivery structures, human capital, and cost efficiency. Politically, it examines the impacts of information technology on transparency and accountability. Legally, it focuses on privacy, access to information, and human rights issues (Gil-Garcia et al., 2017).

In this instance, OGD is viewed as a public sector resource that, when effectively deployed, catalyses digital government, bringing the government closer to meeting the needs of South African society.

Open innovation has been selected as a theoretical framework for this study. This selection is due to the framework's utility in analysing open government data initiatives as innovative processes. Open innovation has collaborative knowledge generation and co-creation of innovations as its essential characteristics.

The study uses public sector innovation theory because, in essence, OGD, as an innovation, falls under the public sector innovation category, which is centred on ideas that work to create public value (Daglio et al., 2014).

The diagram below visually represents the relationship between Open Government Data, Digital Government, Public Sector Innovation, and Open Innovation from the perspectives of managerial, political, and legal analyses, leading to the outcome of Public Value.

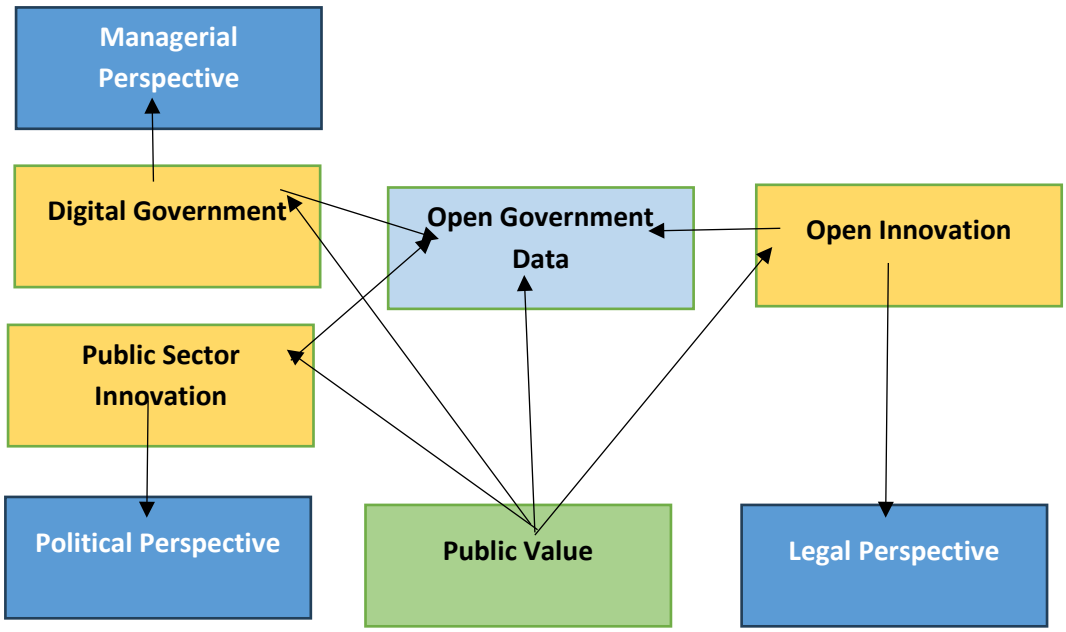


Figure 3 Conceptual Framework: Open Government Data as a Catalyst for Digital Government

2.11 Propositions

Based on the literature review, the following questions and propositions arise

2.11.1 What is the state of OGD adoption in the South African government?

Proposition: The South African government has lower digital maturity levels, considering the literature reviewed on the international standards for digital government maturity levels.

Using the OECD Digital Policy Framework, it can be expected that the digital by-design and data-driven dimensions of the country's digital transformation agenda have not been sufficiently addressed in the South African digital government policy framework.

2.11.2 What factors encourage the use of OGD in the South African public sector?

Proposition: The literature confirms consensus on digital government and the role of open government data in enhancing service delivery. As reflected in the literature, practitioners agree that OGD is an innovation that enables the government to become a platform for innovative public sector solutions.

The limited success of digital government in the SA context can be attributed to the fact that the government has not elevated open government data as a critical element of digital government.

2.11.3 What is the prevalence of OGD-driven innovations in the public sector, and how do these contribute to digital government?

Proposition: There are vital lessons to draw from OGD initiatives through an in-depth study of these initiatives as innovation processes that can assist the government in accelerating digital government.

1. The South African public sector has not adequately appreciated the role of public sector innovation, especially technology innovations, in achieving digital government.
2. Pockets of OGD in government present a potential for the government to draw lessons for application in other areas of digital government, with a particular focus on innovation diffusion.

2.12 Summary

This section has systematically explored the theory of open innovation, outlining its origin, theoretical foundation, and critical characteristics. The section identified three open innovation processes: inbound, outbound and coupled. The section also discussed the significance of open innovation in the public sector and how to link this concept with other theoretical approaches, namely digital and open government and public administration modernisation.

CHAPTER 3: RESEARCH STRATEGY AND METHODOLOGY

3.1 Introduction

The paradigm that was adopted for the study is constructivist, which is also referred to as the constructivist philosophical paradigm. This paradigm is based on the idea that people construct their understanding and knowledge through doing and experimenting (Adom, Yeboah, & Ankrah, 2016).

According to Adom *et al.* (2016), the constructivist philosophical paradigm is closely linked with the qualitative research approach, which has been adopted for this study. This approach is particularly essential for the study because it will involve case studies and provide an opportunity to study varied perspectives from the experiences of the study subjects.

3.2 Research Strategy and Design

The research approach chosen for this study was qualitative. In addition, the study followed a qualitative methodological triangulation approach, combining qualitative research in the form of a case study and interview methods.

Methodological triangulation is defined as “the use of multiple methods to study a single problem or program” (Patton, 2002, p. 247). Methodological triangulation involves using multiple qualitative methods to provide a more comprehensive understanding of a research problem (Denzin & Lincoln , 2011). Interviews can be combined with focus groups to gain deeper insights into a topic from different perspectives. Integrating different methods also enhances the validity and richness of findings by capturing various dimensions of the research question.

The case study method is described as an analysis of a case to identify variables and structures and the order of interaction between participants within the study (Roberts & Hyatt, 2019). A case study, as a strategic qualitative research methodology, involves an empirical examination of a contemporary phenomenon within its real-world setting, utilising multiple sources of evidence (Rossman & Rallis, 2019). Among various qualitative approaches available for data collection, the case study method is

characterised as an “empirical inquiry that investigates a contemporary phenomenon within its real-life context” (Yin, 2018).

Two case studies were used, namely (i) Vulekamali, an open budget initiative in the Department of National Treasury (NT), and (ii) Gov Chat, a civic tech platform by the Department of Cooperative Governance and Traditional Affairs (COGTA), linking citizens to their elected representations and proving a platform for rating government service points. The two case studies are existing open government data initiatives and were used to explore their innovative process and their outcomes or results in contributing towards the digital government aims of the respective departments.

In each case, the project manager and civil society/ implementation partners were interviewed. During this study, four people working directly on the open data projects were also interviewed.

“Interviews are a qualitative research method used to gather detailed information from individuals through direct, often face-to-face interaction between the researcher and the participants to explore and understand the participant's perspective, experiences and feelings about a particular topic” (Bryman, 2016). They can be structured, semi-structured, or unstructured and allow researchers to get rich, detailed data, enabling deep understanding of complex issues (Creswell, 2013).

This study's interviews focused on obtaining insights from policy experts and practitioners in digital and open government fields. Six (6) experts were interviewed.

3.3 Selection of Participants

In this study, as indicated earlier, the primary data source was interviews with participants currently involved in open data projects in the public service. Furthermore, policy development experts on digital government and open government data were also interviewed to understand and explore the broader digital government context. Some experts outside the public service who work directly on the open data initiatives will also be included in the study to derive industry-wide perspectives on the broader digital government environment. The study further included independent experts, as well as experts from private companies who have experience in this area, for

triangulation. According to Rossman and Rallis (2003), valuable information can be gained from experts because of their social, political or administrative positions. In total, 10 people were interviewed for the research study.

3.4 Research Methodology

This study is based on a qualitative research approach. It is a comparative case study coupled with interview methods and document analysis.

Qualitative research has emerged as a robust methodology within academic inquiry. Unlike quantitative methods, qualitative research does not rely on numerical data for quantification but aims to discern underlying causes or explanations surrounding a particular phenomenon. The primary objectives of qualitative analysis involve categorisation, relationship establishment, and hypotheses based on empirical and secondary data sources (Basit, 2003). Moreover, this form of research emphasises elucidating individuals' experiences from their subjective perspectives (Roberts & Hyatt, 2019).

It underscores the interplay between theory and empirical investigation. The objective is to generate theory from emerging data, thus yielding novel insights (Bryman, 2012).

3.4.1 Data Collection and Instrument

Interviews were used as a qualitative research tool for collecting data, mainly semi-structured interviews. Secondary data was also collected. Secondary data refers to existing data that has not been harvested from a first-hand approach, such as government reports and other publicly available official documents.

The interviews were according to the interview guide, and the participants were allowed to share their thoughts on the subject (Rossman & Rallis, 2019).

3.4.2 Population

Purposive sampling was used for the study, a non-probability sampling method in which a researcher uses their judgement to select the population members to

participate in the research (Wagner et al., 2012). Expert sampling was also used to gain insights from specific participants based on their expert roles in the case studies.

3.5 Data Analysis

The analysis aims to discern patterns, delineate themes, uncover relationships, formulate explanations, and interpret findings. Data analysis entails reviewing and synthesising interview transcripts while documenting impressions. This process necessitates a meticulous examination of crucial phrases, words, and sentences, followed by the identification and categorisation of data through labelling and coding (Basit, 2003).

The emerging themes have been stratified using a hierarchy of relevance and importance. The results from this process were drafted in a non-biased manner from a neutral perspective; they were then interpreted and discussed to draw specific knowledge from the community of participants.

3.6 Limitations of the Study

3.6.1 Potential Researcher Bias

The study will use purposive sampling; the most significant risk is potential researcher bias. This limitation results from the research design and can be mitigated to some extent by careful selection techniques and criteria.

3.6.2 Poor representativeness of the sample

Some open data projects in government departments have been excluded from the study. Although representativeness becomes more relevant if the researcher seeks to make a generalisation, which is not the case in this study, it is essential to note that other equally relevant projects in terms of criteria were not included. However, the researcher intends to use the research and the findings to create a rich discretion on the research context and how it applies or can be applied in the real-world context.

3.7 Ethical Considerations

Ethical standards as per the Wits code of ethics were strictly adhered to. The Wits Ethics Committee approved the proposal before any field work commenced. The study ensured that participants were not harmed physically and/or emotionally while participating. The researcher also solicited consent from the participants and upheld the principle of anonymity and privacy. The researcher wished to record the interviews, requiring that further consent be requested from the participants, which was granted in all instances. The participants are experts in the public sector or open data. The research gathered will be used solely for research purposes.

3.8 Reliability and Validity

3.8.1 Reliability

In the context of this study, data triangulation is implemented due to the methodological approach utilised in data acquisition, which amalgamates diverse qualitative methodologies, including case studies and the analysis of pre-existing data (Wagner, Kawulich, & Garner, 2012).

3.8.2 Validity

External validity in this study is not relevant as the study is exploratory and, therefore, does not seek to make any generalisations. Internal validity, which relates to how well the study is done, depends on systematic and substantive rigour, which will be achieved based on the research design.

3.9 Summary

This chapter has focused on the research methodology utilised for the study. The section further explains the research approach applied and the reasons why it was chosen. The exploratory qualitative research method was selected as it is best suited to assist the researcher, using the case studies to understand open data as an innovative process.

CHAPTER 4: PRESENTATION OF FINDINGS

4.1 Overview

This chapter presents the research data obtained from in-depth interviews and secondary data. As elucidated in the preceding chapter, primary data was obtained via interviews with practitioners and policy experts.

The data collection process adhered to the research questions and objectives, thus facilitating the acquisition of insights from various institutional actors and experts concerning the subject matter, as delineated in this chapter.

It is essential at this stage to recall the research objectives, which are to investigate the concept of Open Government Data as an innovation with the potential to accelerate the achievement of a digital government in South Africa. Two case studies, GovChat and Vulekamali, were used to investigate the subject mentioned above, which were considered ODG projects or initiatives.

The chapter will first provide a background, a participant profile, and the process followed. Secondly, the results will be discussed based on the research questions identified in Chapter 1, namely:

- The state Open Government Data in the South African government
- The factors that encourage the use of ODG in the SA public sector
- The prevalence of OGD-driven innovations in the public sector

For an in-depth look at the case studies, this chapter will also discuss sub-themes embedded under each research question, using the themes provided in Chapter 2, namely:

- Public Sector Open Innovation
- Top-Down versus Bottom-Up Innovation Approach
- Collaborative Innovation Approach

The sub-themes were identified by analysing multiple sources and identifying recurring ideas and concepts from the research participants and authors on secondary data material.

4.1.2 Background Profile of Participants and Process Followed

Four groups of participants participated in the study, namely:

(a) Public service project implementation managers for the identified case studies,

(b) Civil society: project implementation team members for the case studies,

(c) Public sector policy experts working directly in the digital government or innovation policy space and

(d) independent policy experts who previously worked in the digital government or innovation policy space or are working indirectly with and on digital government or innovation-related initiatives or projects.

A total of 10 interviews were conducted, with participants in middle and senior management in the respective organisations listed in the table below:

TYPE OF PARTICIPANT	PARTICIPANT CODE	ORGANISATION	NUMBER OF PARTICIPANTS
1. Public Policy Sector Expert	PSPE01	Department of Communication and Digital Technologies	2
2. Public Policy Sector Expert	PSPE03	Department of Communication and Digital Technologies	
3. Public Sector Policy Expert	PSPE02	Department of Public Service and Administration	1
4. Public Service Project Implementation Expert	PSPIE01	Department of Finance	1
5. Public Service Project Implementation Expert	PSPIE02	Department of Cooperative Governance	1
6. Civil Society Project Implementation Expert	CSIE01	Imali-Yethu Coalition	1
7. Civil Society Project Implementation Expert	CSIE02	GovChat	1

8. Independent Expert	IE01	Centre for Public Sector Innovation	1
9. Independent Expert	IE02	Human Sciences Research Council	1
10. Independent Expert	IE03	Open Government Partnership	1

Table 1 An overview of interview participants

4.3 Results Pertaining to Research Question 1

What is the state of OGD adoption in the South African government?

Participants were asked the following questions to understand the state of OGD in the SA government:

1. Interview question: In your understanding of the Gartner Digital Government Maturity Model, where would you place South Africa?

Participant	Initial (e-government)	Developing (Open	Defined (Data-centric)	Managed (Fully Digital)	Optimising (Smart)
PSPE01	✓				
PSPE02	✓				
PSPE03		✓			
IE01	✓				
IE02		✓			
IE03				✓	

Table 2: Response to question 1 on the current SA position/status regarding the Gartner digital government maturity model.

Most participants indicated that the South African government was at the initial (e-government) stage in terms of the Gartner digital government maturity model. Some indicated that there were mixed levels between initial and developing in the various departments and spheres of government.

> **PSPE01: "**So that is why we are ranking between developing and initial. So you have areas where it is advanced, like outside urban areas, and if your suburbs maybe, and then you got areas where it is between developing and, you know, initial maturity levels and almost nothing".

PSPE02: “Largely, the focus and the appetite and the thrust of government currently, is still we are still talking about e-government”.

IE01: “Regarding answering your question, we are not fully e-government yet”. However, you do have some pockets. I think Vulekamali is getting closer to that point and GovChat because of the layer of data analysis that goes on top of the services, so you can start making intelligent decisions”.

IE02: “South Africa is going to have a mix of levels. I think, you know, we lean towards openness… it is kind of classify us as somewhere between open and integrated”.

2. Interview question: What are the critical digital government objectives for the South African Government?
   When asked about the South African government's critical digital objectives, most participants highlighted improving citizens' access to services as the most critical objective. The participants listed efficiency in administration as the second most important objective and, thirdly, enabling an inclusive digital economy.

   Some raised concerns about the lack of coherence in the articulations of these objectives and a clearly defined approach to achieving them.

   PSPE01: “The first and most important objective is to ensure that the digital infrastructure is provided across the country to ensure citizens can access digital services”.

   PSPE01: “The fourth one relates to creating an enabling environment for digital skilling of citizens as well as public service workers to enhance what we are seeing inclusive digital economic participation and service delivery”.

PSPE03: “Basically, at its core, one of our key projects is the SA connect policy that every single government service in every single area in every single municipality, we have, a school, be it a hospital, be a judicial, let us say the courts, all those things have to be digitised and connected”.

PSPE02: “Two aspects that are intricately linked as two sides of the same coin one, it is bringing about efficiency in the administration in the backend aspect of government, what will be termed an operating model? Right. However, secondly, improve the delivery of services to the citizens to the public”.

IE01: “I honestly do not know if we have a digital government objective. If I look at the DPSA, who is supposed to lead this, however we look at it, if I look at the annual performance plan and the strategic plan, I do not see a vision that talks to digital government.”

IE03: “But what I have seen in my analysis is that government does not have a cohesive, comprehensive agenda that speaks to digital governance, and how, you know, how different departments can begin to interact with that policy”.

3. Interview question: Are you aware of any policy or strategy on open government data in the South African government?

Participant	**# of participants who answered Yes**	**# of participants who answered No**
Public Sector Policy Experts	0	3
Independent Experts	1	2

Table 3 Responses by experts on the question of whether the South African government has a policy or strategy on open government data.

The prevailing response among participants indicated that South Africa lacks an established open data policy or strategy. Several participants mentioned ongoing initiatives to formulate data and cloud computing policies.

> **PSPE01:** “The ICT Policy white paper calls for the development of the open data strategy, and even the policy we are developing called draft data and cloud policy was moving in that direction”.

> **PSPE03:** “Now, that said, the easy answer is no, we don't. There is a lot of talk, and I've sat in on one and two of very high-level meetings”.

> **IE01:** “Should we even have a policy on open data”?

> **IE03:** “I think there is a comprehensive open data policy by the government, from my understanding, which I think departments have to follow”.

4. Interview question: Are you aware of any open government data initiative in the South African government?

Participants indicated that open data portals exist at the local government level in Cape Town and eThekwini municipalities, which were highlighted as examples. Environmental affairs open data and data sharing were also mentioned as an open government data initiative. However, the participants stated that there is no whole-of-government open data initiative.

> **PSPE01:** “Western Cape has created data portals accessible to citizens”.

> **IE02:** “I think the more established programmes are in, you know, for example, environmental affairs, where the environmental community and departments have a very long-established history of opening data and sharing data”.

4.4 Results Pertaining to Research Question 2

What factors encourage the use of OGD in the South African public sector?

The following questions were asked to understand what factors encourage the use of OGD in the South African Public Sector:

1. Interview question: What is your understanding of open government data and its importance in digital government?

   Most participants described open government data as a process of making data accessible to citizens. Concerning digital government, participants indicated that open government data is critical because it assists the government in gaining insights into citizen needs and customising services according to those needs.

   > **PSPE01:** “The understanding of open government data is making data accessible, common data or information accessible to citizens”.
   >
   > **PSPE02:** “A digital government is designed to do a couple of things, improve service delivery, right, and efficiency towards the citizenry and in doing so, that government does numerous things, but importantly is number one, it leverages available data”.
   >
   > **IE01:** “If we say, let us give our citizens access to government data so that they can help us solve these problems, it is a way of engaging with citizens about their needs… open government data is simply one of the digital versions of still adhering to the batho pele principles.”
   >
   > **IE02:** “So I think that, you know, the limited data sharing or open data within those between government departments or state entities is an area that I think can be quite useful to support better joint planning and collaboration between government entities”.

IE03: "Open government is all about opening up information for citizens. So part of that is the transparency of things where the government has to share data of decisions and decision processes with citizens proactively".

2. Interview question: Would you agree to classify open government data as a public sector innovation?

TYPE OF PARTICIPANT	Yes	No
1. PSPE01		✓
2. PSPE02	✓	
3. PSPE03	✓	
4. PSPIE01	✓	
5. PSPIE02	✓	
6. CSIE01	✓	
7. CSIE02	✓	
8. IE01	✓	
9. IE02	✓	
10. IE03	✓	

Table 4: Responses on whether open government data can be classified as a public sector innovation.

Ninety per cent (90%) of participants agreed that open government data could be classified as a public sector innovation. Only 1 participant did not consider it an innovation; however, when propped further, the participant conceded that opening government data enables innovation.

PSPE01: "But the process of making it available is not an innovation. However, if you make it available, you will enable innovation. So it can be an innovation enabler, but it is not an innovation".

IE01: "I think so, very much in terms of the philosophy, the thinking, as well as in terms of the kind of mechanism that it is opening; it is an innovation".

IE03: "So it is an innovation that enables citizens to engage with government in terms of how decisions are made, how public services are being delivered".

CSIE02: Most definitely, it is the data and the government's ability to respond and be more responsive.

CSIE02: I also think it's innovative because it advances certain aspects of the South African government. "

PSPIE01: "Yes, definitely a Public Sector Innovation. It saves printing costs. But I think it's a different kind of cost that we have."

4.5 Results Pertaining to research Question 3

What is the prevalence of OGD-driven innovations in the public sector, and how do these contribute to digital government?

Participants were asked the following questions:

1. What, in your opinion, is public sector innovation and its role in digital government?

   The critical standard terms/words used by participants when discussing public sector innovation are the following:

   (i) Speed: increase of speed in service delivery
   (ii) Efficiency: delivering services at minimal cost with little to no wastage
   (iii) Effectiveness: delivering services that have the desired impact.

   In terms of the role of innovation in digital government, participants indicated that digital government enables innovation; an example used is in digitising

government documents, which improves data that is then used by innovations to develop new services.

PSPE03: “So public sector innovation is critical to me. It is at the core of what we are discussing today; it is about how that can speed up things.”

PSPE02: “Public sector innovation, to introduce anything at all that is going to lead to improvement and efficiency to the public service, as well as improvement in terms of service delivery” …. “Therefore, I am saying innovation in digital going forward is going to impact us, as a public sector more than the private sector”.

IE01: “We do not digitise for the sake of digitizing; we digitise to create the foundation for innovation. Let us get this activity of digitising services, digitising documents and so on off the ground and let innovators, specifically in an open innovation environment, say, at the hackathon, okay. We have anonymised health data of the whole country. What can you do in terms of training artificial intelligence with this data so that we can better position clinics to better serve citizens?”.

IE02: “So, I would say so; Public Sector Innovation provides an important lens for understanding what organisational changes are needed for our municipalities and departments to use digital technologies.”

IE03: “Well, I think innovation in the public sector would be, you know, ways that government can provide services in a much faster, efficient and effective manner”.

CSIE01: “I think the public sector should be about responding to what the public inputs. Innovation should be responsive to the need and responsive to the public to say, right, how can we change that to

enhance our delivery of services, enhance, you know, sort of public experience of a particular government department's services".

2. Are you aware of any policy or strategy for public sector innovation in the South African government?

Participant	Yes	No
PSPE01		✓
PSPE02	✓	
PSPE03		✓
IE01		✓
IE02	✓	
IE03		✓

Table 5: Responses on policy or strategy for public sector innovation in the South African government

Up to 66% of the participants who responded to the question stated that the South African government does not have a policy or strategy for public sector innovation.

PSPE01: "As I have mentioned here. I am not aware that there is a policy on innovation. What I know is that DPSA does invite innovations. They embrace innovations, where public servants are requested to submit innovative ideas to enhance service delivery".

PSPE01: I cannot say it is a policy, but it is an institution that has also been established to support innovation: TIA, Technology Innovation Agency. I am sure there must be an act supporting the establishment. The Department of Science and Technology oversees some of the government's initiatives to encourage innovation. "

PSPE03: "No. There is no policy driving innovation".

PSPE02: “I mean, you go to DSI, with government activities, being informed by pieces of legislation. DSI deals with innovation issues, and there are innovation strategies and policies.

IE01: “We have the broad white paper on science and innovation where public sector innovation is included. At a provincial level, we have Gauteng and Western Cape. Some cities have innovation policies, but as government, we do not have a policy”.

IE02: “The Department of Science and Innovation, there is more of a push of innovation into the public sector environment, and the most recent STI white paper is interesting there because I think it has a much stronger leaning towards government as a user of innovation” … “Then, of course, I think there is a long history of the CPSI and DPSA; I do not have a good sense of the history or the roots of the CPSI. Nevertheless, of course, that is an important area”.

IE03: “None that I have come across”.

3. Are you aware of any public sector innovations on digital government that the government is currently implementing or has previously implemented?

   Most participants highlighted e-portals as public sector innovations in digital government. Some stated that there are digital government projects, but they could not, however, refer to them as public sector innovations.

   PSPE01: “The fact that I am not aware of innovations in government as a policymaker, especially digital innovations within government. It is not information that is broadly communicated”.

   PSPE03: “Well, yes. As I said, the one that I am working on right now is the e-services portal.”

IE02: “So, for example, maybe go back to the GIS community again, because I mean, they have, in my view, a much longer history of working data and digital tools within government environments. I do not know much about their actions, but they are considered radically innovative. No, there has been quite a steady evolution in bringing in tools and practices in that space. Moreover, possibly the same applies to, say, SARS, and his identity community, sort of Home Affairs and others where, you know, it has been quite a steady with some jumps”.

IE03: “I can talk about the one I interacted with most right now, the e-tender tender portal. I think the tender portal was created for one thing and one thing alone: to make procurement more effective and efficient. Right, and opening up to be more transparent regarding how procurement is done in South Africa. And that, in itself, enables government’s processes to be faster, but also enables some scrutiny from and accountability to the citizens”.

4. Are you aware of the GovChat and Vulekamali projects? Would you classify these as digital government initiatives?

   All the participants who responded to the question stated that they knew both GovChat and Vulekamali. They also agreed that these are digital government initiatives with unique characteristics in that they are based on government and citizen collaboration.

   PSPE01: “Those ones do get communicated because they give some departments bragging rights, obviously. So yes, I am aware of them.” My interest was primarily that they begin to demonstrate how innovation can be enhanced through collaboration between Government and citizens. “

   PSPE03: “Yes, that is a digital government initiative”.

   IE02: “I think both of them are interesting because they, for me, both brought in different ways. So one is mainly private sector-led, and the other is mainly government-led; they both sit at the periphery, or the edges of their core operations, or the core of government activity. Low

end in both cases, they are kind of they were established at the edge and then working back into those core systems".

IE03: "Yes, I would definitely; I think I would do that. Because of the objective that they bring and the key objective for those two, for those two, is to make engagement to create engagement between government and citizens to disclose information to citizens and allow interaction between government and citizens".

4.6 Results pertaining to Public Sector Open Innovation Case Studies

Parallel questions were posed to project management participants involved in GovChat and Vulekamali initiatives to investigate the public sector innovation approaches employed in project implementation within the case studies. The resultant data gleaned from the interviews related to the case studies will be synthesised below:

1. In your opinion, what is the objective of the Vulekamali project?

   Both public sector and civil society participants asserted that the project aims to expand access to budget data.

   CSIE01: "The objective of Vulekamali is to meet the public participation gaps as it were in South Africa's budget process".

   PSPIE01: "Vulekamali is our attempt to make data budget data accessible. So it is to provide access to information that is already public knowledge and is available but making it available to those who previously might not have had it".

2. Was the project initiated by the government, or is it a civil society-initiated project?

The participants concur that the project was a joint effort between the government and civil society. They used the terms collaboration and co-creation to describe the nature of the project's origination.

CSIE01: “I can safely say that I think it was a collaborative and an organic discussion. So, we, the treasury, were represented at a Global Initiative on Fiscal Transparency (GIFT) meeting. I think it was a Brazilian example that was given about how a Data Portal was either Mexico or Brazil, but that a Data Portal allowed greater access to information and kind of discussion for a range of actors outside of government us thinking about, like, what are the possibilities in South Africa”.

PSPIE01: “The project was, I can say, co-creation. So, civil society could not initiate it because it could not be done independently. So, they would have done it outside of government if it was their initiative. I say the co-creation because we discovered some of these things, like the format of budgeting information, are not easily understandable. I would not have known that had I not consulted civil society because they are the ones who use the data most of the time for advocacy work. They are the ones who asked why you keep using PDF and not Excel. Such a simple thing for us to do, but we did not know there was a need for it”.

3. In your knowledge, what led the department to decide on implementing the project?

The participants agreed that the government's decision to implement the project was based on its commitment to budget reform.

From the government side, it was also highlighted that the National Treasury wanted to keep up with the global digitalisation trend.

CSIE01: “I would add to that my maybe optimistic perspective is also that I think Treasury will certainly that I would say that the budget office and the budget

reform office have been invested in reform. So I think, I think that was that for them that was a priority to kind of advance reform".

PSPIE01: "It was also something that we were seeing happening globally, obviously, with the fourth industrial revolution and our peers in terms of finance ministries, and where they were all going, and so the need was also now coinciding with that big shift in moving data transparency to be more digital and not getting left behind".

4. In your opinion, does this project contribute to improving service delivery? If yes, in what aspect: responsiveness, efficacy, efficiency, or cost savings?

   Participants indicated that it improves service delivery and makes the government more responsive from the National Treasury's point of view.

   CSIE01: "I would say more responsive. Again, it also has a public-facing inquiry and input, sort of exchange, to, you know, and the interesting thing is that the civil society partners have been part of that. So when someone throws out a question about, I need x, y, and z, it is not available help me. So there is, you know, change to responsiveness to Treasury".

   CSIE01: "Organisations raised the importance of having access to credible budget data in order to understand better resourcing in areas like, you know, education, land, and others. So, if we, if we have an online platform like this, that can do that, and able to ask, you know, help us to ask better questions, either of duty bearers or of oversight actors, that for me is ultimately would lead to like better service delivery because then, you know, it is there is that link to those who are tasked with delivering services being asked the right questions".

   PSPIE01: "So it depends on what service delivery is referring to. If you are referring to the service I provide to the public, is the National Treasury, then? Yes, it does. Because I get to share the budget and make it transparent to them, this is a requirement that the Constitution expects of me as the National Treasury. So from that perspective, yes, it does".

5. What would you say is the project's relationship with open government data and or digital government?

   The participants stated that opening up budgeting data is the first phase of the project and that, in the future, opening up budget data could assist with innovation in the government digitalisation process, especially in the procurement space.

   Participants shared that digitising budget data makes it more open and accessible, enabling online public participation.

   CSIE01: "This is definitely, you know, so right now, where Vulekamali is, is just the precipice of, like, phase two of its development, and the idea is that they would be greater innovation around aspects like, you know, digital or e-government processes relating to procurement".

   PSPIE01: "For me, it is just having information readily available, whether on or without request. That is open government to me, whether it is budget data, performance, or a department's KPIs, and that is open to any government-related information, anything done through the taxpayer's funding, that is, a government that belongs to the public. Why is it important? It is important because I am a stakeholder. I am a key stakeholder, an investor in this country, and as an investor, I expect full disclosure of my investment, you being the citizen. Yes. Me being the citizen".

   PSPIE01: "Digital Government is the paperless government. So, when I want information on the budgets, on the performance of any different department or sector of interest to me, if I want to apply for a renewal of my licence or my passport, I expect to be able to access it all at the click of a button that is the government that is digital that does not require me to go queue somewhere to be able to get any service or any information that is a digitised government".

PSPIE01: “It is helping us to have a more informed citizenry, and a more informed citizenry is a participating citizenry and an active citizenry. And so we are for sharing and being accessible, and that's why it's important to us to digitise government.”

6. Would you say that Vulekamali is a public-sector innovation? If yes, why? If not, why not?

   The respondents 100% agreed that Vulekamali is a public-sector innovation. They listed cost-saving and data integration as key public-sector innovation elements of the project.

   CSIE01: “So I mean, Vulekamali hopes to be able to connect budget planning, spatial data, and to some extent procurement data all together, to allow a user to be able to understand what is being spent on what and what was not spent, and also what was planned and what did not happen so I think it is an innovation from that perspective”.

   PSPIE01: “Yes, definitely a Public Sector Innovation. It saves costs on printing. However, I think it is a different cost that we have” … “So I think it is a public sector innovation. I think when we think about innovation, we must not look at innovation as only the things that have saved us money; they have to cost us money to save us money”. So innovation is not equal to zero-sum costs. It also comes with its own cost. But in the long term, is it these benefits far outweighs its cost”.

7. Would you say that the project has been successful, if yes what would you highlight as evidence of the success, if not, what would be the failures?

   The participants state that the project has been successful in achieving several of its objectives. They also stated that the number of people who use the platform demonstrates that the Vulekamali platform fulfils a need that existed.

CSIE01: It is difficult to say its success, but I think it is a meaningful, you know, it is an achievement in that a core goal was to ensure that that potential users informed the agile and incremental development of Vulekamali or, you know, or just members of the public more generally, so that sort of going across the nine provinces and soliciting input, from me, in itself was an essential aspect of it, I would say, a sort of a win or, or success was, was just the publication of new datasets that previously had not been published by the National Treasury.

PSPIE01: “I think it is a success because of the use, and the people using it are proof that there was a need for it”.

8. Do you think the project has the support from the necessary stakeholders within the government?

Participants agreed that the project did not enjoy support from the government at the political and senior leadership level.

CSIE01: “I think that the support from the National Treasury has been excellent... I would say, though, that the Treasury themselves do seem like there is a need for additional support, whether it is actually both administrative and political, to ensure this work's sustainability. As an outsider reading the context, I sense there is a constant fight from those within the budget office responsible for this work to ensure that it stays alive within the Treasury and continues to be supported…. I think there may be greater governmental support, even if it is from a, trying to understand what is needed”.

PSPIE01: “I would not say that is significant, but it is the overwhelming support. It is just seen as another project, and there has not been any volunteering to ensure the project succeeds. So, I cannot say this is the kind of support they have received. For example, any funding for open government projects or anything like that; we're not any of those kinds of offers. So I do not think stakeholders within government are that supportive in that sense”.

9. In your opinion is the project sufficiently known in government or is it only known by the few who work in a similar space?

   Participants stated that the project was not sufficiently known. It is known only by those in the public finance space, or departments consulted for data sharing.

   CSIE01: I think it can deal with more awareness raising definitely. Mainly from the perspective of those who are not within the budget, or fiscal, you know, fiscal policy or public finance space.

   PSPIE01: “Yes. They know about it. However, it is not. I would not say I would not say they are overwhelming. There is overwhelming usage of it. Only the people who benefit from it usually know about it. We have generally promoted it in government because we needed to get their clearance to share data. Let them know that this will be accessible, and so on. So different levels of government know about it”.

10. Do you know of any government department interested in using the platform or adapting the project for similar objectives in another department?

    Responses were 100% no, on interest in using or adapting the platform in other departments.

    CSIE01: “No, no, I do not know. My only example is from another civil society kind of partner, but again, in another country. So we had someone from Cameroon ask us, can we provide support to see if they could do Vulekamali for themselves?”.

    PSPIE01: “So no, no one has approached us about this platform to adapt it for their department”.

11. What has been the public response to the project? What method has been used to measure the public response?

The participants indicated that the project has received a positive response from the public based on social media feedback and usage statistics. However, they stated that no mechanism was devised to measure the public response.

PSPIE01: “So far, it is just social media and keeping the statistics of the platform's usage and have received good feedback”.

4.2.1.1 Public sector innovation approaches utilised in project implementation in the GovChat case study

1. In your opinion what is the objective of GovChat project?

The participants indicated that GovChat's objective is to enable and/or improve engagement between government and citizens.

CSIE02: “In my opinion, the objective for GovChat is to digitise essentially is to make the interaction between citizens and government seamless, and that's governments in the sense that across different governments, and that can be accomplished so that seamless connectivity, that connection…. the objective is just to connect, strengthen that connection and make it more interactive between the citizen and the governments and that is done through digital digitisation, which takes different forms”.

PSIE02: GovChat's purpose is to enhance public participation. It serves as an efficient digital platform for elected public representatives to meet with communities. Communities were frustrated by municipalities' non-responsiveness to service interruptions and resorted to service delivery protests. So, the platform was developed as a response.

2. Was the project initiated by government of is it a civil society-initiated project?

Both participants indicated that COGTA initiated a citizen engagement programme as part of its service delivery improvement and required a

technology solution to augment existing citizen engagement platforms. The COGTA need coincided with GovChat, an entrepreneurial initiative developing a concept for a citizen engagement platform, which led to the partnership.

CSIE02: “So GovChat, in this case, was initiated as a private sector initiative, as an entrepreneurial initiative, to be more specific”.

PSIE02: “Both DCOG and GovChat initiated the project. DCOG identified the need to use technology and sent a request for information through a public notice. A variety of proposals were received, but they were expensive and unsustainable. Through the OGP, the GovChat was brought to the attention of DCOG”.

3. In your knowledge, what led the department to decide on implementing the project?

   Each response highlighted that the project was implemented because of an identified need for community feedback on service delivery experiences.

   CSIE02: *“*They need to centralise and understand what is happening in communities from a service delivery point of view. Moreover, secondly, to have access to real-time data that they can use for reporting because the cycle of reporting to them from the other spheres of government is slow and often takes quarters”.

   CSIE02: “So I would say that what informed it was an innovative perspective by individuals in DCOG, who were looking for solutions to problems and then when GovChat presented a solution, that was de-risked, if I can put it that way because the approach that GovChat was to de-risk the partnership by not charging government and other commercially minded clauses being waivered for the benefit of government that I think enabled the innovative and the those who are innovatively minded to also then it gave them the comfort that they can take the risk to be innovative”.

PSIE02: There was a need for the platform, so DCOG responded to the need.

4. In your opinion, does this project contribute to improving service delivery? If yes, in what aspect: responsiveness, efficacy, efficiency, or cost savings?

   Participants indicated that the project fulfilled all the above aspects of improving service delivery because it has real-time data that supports improved decision-making while enabling responsiveness to complaints and municipal faults reporting. This makes the municipalities more responsive.

   CSIE02: “It enables government from a decision-making point of view to have access to real-time data on whether the government chooses to use that information, but the data is then accessible. On the second front, it also solves the question of service delivery, in the sense of not only just responsiveness but having insight around whether municipalities, individuals, and government entities are responsive.” It aims to ensure that municipalities or government institutions respond timelessly to requests, complaints, and service delivery challenges that are being experienced.

   PSIE02: The project fulfils all needs, responsiveness, efficacy and cost saving.

5. What would you say about the project’s relationship with open government data and digital government?

   Both participants indicated that Govchat is a platform that enables the South African government to be digital. Regarding open government data, the participants stated that GovChat data is not open to citizens but is open to sharing and integration between the spheres of government and departments.

   CSIE02: “So on the digital government side of things, all our features enable facets of the South African government to be digital, not only through our partnership with COGTA but also through SASSA and Health, as well as with the IEC. We enable a new connectivity that makes it easier and better for those entities”.

CSIE02: “On the Open Data side, we have largely been only sharing data at the moment with government entities and government partners, but as I said before, the ultimate intention is also to enable cross-platform integrations because more connectedness is better”.

PSIE02: “Digital government for the citizen is about engaging government or receiving government service from the comfort of your own home. It is about improving access to government services and sharing information digitally, enhancing service offerings, facilitating e-participation, and engaging the public in improving services. Open government data can inform citizens about progress in service delivery, for example, feedback on infrastructure development or any areas of citizens' concerns if it enables citizen access to information.

6. Would you say that GovChat is a public sector innovation, if yes why? If not, why not?

The participants stated that GovChat is a public sector innovation that enables the government to be more effective and responsive and save costs.

CSIE02: “Most definitely, I think it is because it makes government more effective, because of solutions delivered to government and government having access to data apart from the technology itself. It is the data, and the government can respond and be more responsive”.

CSIE02: I also think it is innovative because it brings forward certain aspects of the South African government and is well-recognised globally. The made has put South Africa in a positive light as an innovative public sector player in public sector technologies. As a result, something of this nature can be practical in the South African public sector and globally. So that is why I think it is: it is an innovation.

PSIE02: “GovChat is a public sector innovation because innovation in public service is about doing away with manual systems; internally in government, it

is about digitising systems to improve business processes and finding better solutions to deliver to citizens."

7. Would you say that the project has been successful, if yes what would you highlight as evidence of the success, if not, what would be the failures?

   The participants stated that the platform has been successful in linking millions of citizens to government citizens and enabling thousands of municipal reports about the state of services in municipalities.

   CSIE02: "I just mentioned them high level for the first one is that GovChat has been able to reach 12.5 million citizens with 8.5 million of them being active on the platform, and that is active citizens who are digitally connected to government services and the second would be that, in, in the period, that GovChat has been available over 30,000 service reports have been submitted to municipalities across the country.

   PSIE02: "Municipalities are now using the platform for complaints and reporting of municipal faults such as burst pipes. The platform generates a report and provides updates. It also takes away the burden of costs for government to engage citizens by leveraging technology."

8. Do you think the project has the support from the necessary stakeholders within the government?
   CSIE02: "Ideally, the government needed to maybe push a bit further and harder around the popularisation and ensuring that it that the platform is accessible, people know about it using the multiple channels, and just with the posters and the like, and that is part of the agreement that we have with government, but that has not been forthcoming over the years".
   PSIE02: "The project is receiving support from municipalities but less support from the national and provincial governments. This is due to a silos mentality in government and the lack of integration; departments do not know what each department is doing.

9. In your opinion is the project sufficiently known in government or is it only known by the few who work in a similar space?

   The participants stated that GovChat is well known, as it has been used as a platform for other types of COVID-related government messaging.

   CSIE02: “I think it is, to be fair. It is because of all the stuff, including partnerships with the UN. If it is not known, then maybe it is willful ignorance to some degree, but I think it is known, or the concept and what we are doing to a large degree with where it needs to be”.

   PSIE02: “GovChat is well known, especially with COVID when the Department of Health used it as a COVID information platform. Citizens at local government also know about it and use it.”

10. Do you know of any government department interested in using the platform or adapting the project for similar objectives in another department?

    Participants listed two other government departments that have adopted the GovChat platform: the Department of Health and the South Africa Social Security Agency (SASSA) under the Department of Social Development.

    CSIE02: The project started with COGTA and now includes SASSA and the Department of Health.

    PSIE02: “Yes, the Departments of Health have adopted the COVID awareness platform, and the Department of Social Development adopted the platform for social grants”.

11. What has been the public response to the project? What method has been used to measure the public response?

    Participants indicated that the response to the project has been extremely positive, with more than 8 million users actively using the platform. Participants

also stated that user engagement is a critical aspect of the GovChat platform, which is used to understand how the public interacts with it in order to improve the service offerings.

CSIE02: “User engagement is a key aspect and impact. We measure that impact through what services people use, how many users are on the service, and how often they use different parts. Moreover, we are finding that people use different parts of the service”.

PSIE02: “The GovChat platform regularly generates reports on what services the citizens are accessing through the platform. Therefore, it is easy to see the growth in the number of users, especially those who return to use the platform for different services.”

4.7 Summary of Presentation of Findings

Our data reveals that while South Africa is in the e-government stage of digital transformation, there is a significant gap in the form of a unified digital government strategy. This absence leads to a fragmented implementation of digital government initiatives, resulting in limited or negligible impact.

Furthermore, the results indicate a dearth of an open government data policy or strategy within the South African government, accompanied by restricted data utilisation in policy formulation. While select government departments and agencies adopt a default approach in providing public access to data, overall, there remains minimal advancement in enhancing service delivery through technology utilisation by the South African government.

Where open data initiatives have been implemented, there have been higher levels of innovative organisational culture. In both case studies, collaboration or co-creation with civil society was a prominent feature that made the projects successful.

The data clearly demonstrates that the application of public sector innovation approaches significantly increases the potential for success in digital transformation.

CHAPTER 5: ANALYSIS AND DISCUSSION OF RESEARCH FINDINGS

5.1 Introduction

This chapter will focus on presenting findings from the data collection and analysis process covered in Chapter 4. The findings will be discussed by the theoretical observations in the literature review. The fieldwork results will be analysed and interpreted against theoretical findings to describe the significance of these findings and explain new insights about the use of open government data and public sector innovation to accelerate digital government in South Africa.

5.2 Discussion pertaining to Research Question 1

5.2.1 Theme 1: Digital by Design

The research question is intended to establish if there is a concurrence amongst crucial role players in and outside government about South Africa's level of digital maturity using the Gartner Digital Government Maturity Model. The rationale for utilising the GDMM is because, as the literature indicates, digital government indexes are reliable tools to measure the state of play in digital government from different perspectives (Dener, Nii-Aponsah, Ghunney, & Johns, 2021). Furthermore, the GDMM is a diagnostic tool to determine the digital government baseline and chart the digital government path (Bakar, Ibrahim, & Yunus, 2020).

The consensus among the participants involved in this study suggests that, according to the Gartner Digital Government Maturity Model, South Africa currently resides in the initial/e-government phase. The participants indicated that there were some pockets of higher levels of digital maturity in specific government departments, such as the National Treasury, which is implementing the Vulekamali project, since the project includes a layer of data analysis on top of services provided. It is essential to highlight that in terms of the literature, the initial/ e-government stage is level 1 out of 5 levels of digital government and is characterised by a focus on digitising existing services but data and its uses are limited and in silos. (Meulen, 2017).

The digital government state of play in South Africa is further confirmed by the aspirational language in official government policy documents on digital government. For example, the National Integrated ICT Policy White Paper underscores the

necessity for governmental adoption of an improved e-government approach (Department of Telecommunications and Postal Services, 2016). Similarly, the e-government strategy 2017 articulates the government's aspiration to attain stage 4 – connected presence according to the UN e-Government Maturity Model (Department of Telecommunications and Postal Services, 2017).

The question on the South African government's digital government objectives aimed first at ascertaining if there is a cohesive set of digital government goals that are commonly understood by the various role players and secondly at understanding if opening up government data is one of the strategic objectives.

In response to digital objectives for the South African government, most participants listed (1) improving access to services to citizens, (2) bringing about efficiency in the administration and enabling and (3) an inclusive digital economy. Some participants referred to strengthening digital infrastructure and improving connectivity. None of the participants spoke about open-up data or a data-driven public service as one of the objectives.

Multilateral organisations such as the UN, WB, and OECD commonly agree on the characteristics of digital government strategies and action plans. According to the UN, these include improving service provision, strengthening digital literacy, digital inclusion, improving digital connectivity and digital identity (Department of Economic and Social Affairs, 2020). The World Bank, on the other hand, highlights the whole government approach, data-driven public sector, digital skills and innovation labs as some of the fundamental tenets of digital government strategies (Dener, Nii-Aponsah, Ghunney, & Johns, 2021).

The OECD's Digital Government Policy Framework delineates embedded dimensions that typify a fully digitised government, encompassing principles such as digital by design, data-driven public sector, government as a platform, open by default, user-driven approaches, and proactiveness. (OECD, 2019).

5.2.2 Theme 2: Data-Driven

The research question further sought to establish whether the South African government has a policy or strategy for open government data. The participants unanimously agreed that the government did not have a policy or strategy for open government data.

Several respondents noted that although no existing policy or strategy was in place, the National Integrated ICT Policy White Paper outlines the potential development of an open data strategy. This document, referenced in the literature, explicitly pledges that the South African government will formulate a comprehensive open government data policy framework and action plan. (Department of Telecommunications and Postal Services, 2016). What is critical to highlight from the literature in terms of the key characteristics of a digital government is that it underscores that a data-driven public sector places national data policies and strategies at the centre of data governance (Ubaldi, Gonzalez-Zapata, & Barbieri, 2020).

Thirdly, the inquiry sought to ascertain the presence of open government data initiatives implemented by the South African government. The assertion was that the government had overlooked open government data as a fundamental component of digital transformation.

Digital government entails the government's proactive disclosure, encompassing the provision of government data and policy-making procedures (inclusive of algorithms) for public interaction, subject to existing legal constraints and balanced consideration of national and public interests (Ubaldi, Gonzalez-Zapata, & Barbieri, 2020, p. 42). The expectation, therefore, is for governments to have deliberate projects and or initiatives to implement opening up government data.

Participants indicated no national or whole government open government data initiatives in South Africa. However, they could share that the City of Cape Town and the City of eThekwini had open data portals. According to the literature, there are several barriers to OGD adoption; these include “lack of appropriate legislation or uniform policies for data publication, lack of processes for dialogue with users, inattention to the differences among levels of government, and lack of resources to

launch and sustain an OGD program" (Dawes, Vidiasova, & Parkhimovich, 2016, p. 16).

The findings in Chapter 4 related to Research Question 1 are consistent with Propositions 1 and 2 in the literature review. Proposition 1 states that the government of South Africa has made limited progress in achieving digital government; this is consistent with the findings that South Africa is in an e-government phase, the initial or first phase in the digital maturing index. Proposition 2 postulates that the SA government has ignored open government data as a critical dimension of digital transformation; the findings support this proposition, presenting the non-existence of open government data policies or strategies and initiatives as evidence to support this proposition.

5.3 Discussion pertaining to Research Question 2

5.3.1 Theme 3: Government as a Platform

In the responses, participants demonstrated a common understanding of digital government. They stated that it is about improving service delivery and achieving efficiency in delivering government services. The participants also shared similar views on the role that OGD play in providing insights for policy making and innovation in service design, which in turn ensures policies and services that are responsive to the needs of the citizens in the digital government context. This aligns with perspectives articulated in scholarly discourse, suggesting that public agencies utilise (OGD) to engage external stakeholders, thereby fostering innovations in electronic service delivery. (Davies & Lithwick, 2010). This is additionally associated with Davies (2010), who contends that the motivations for involvement with open government data encompass (a) technological innovation, involving the development of novel platforms and tools, as well as an interest in semantic web/linked data technology; (b) the digitisation of government, aiming for technologically-driven enhancements in the efficiency and operation of government; and (c) social/public sector enterprise, utilising Open Government Data (OGD) to furnish services within or to the public sector.

5.3.2 Theme 4: Open by default

The research participants unanimously agreed that open government data should be

classified as an innovation in the public sector. The participants refer to the opening up of data as an innovation because it changes certain aspects of government business processes, enables cost-cutting, and advances the increase in data usage for policymaking. In academic literature, the evolving landscape of open data has recently been characterised as an open innovation practice, wherein the utilisation of government data has explicitly been associated with the inside-out process. (Lassinantti, 2013, p. 2). One of the critical insights that emerged in the discussion with participants about this question was the link between open government data and open innovation in the public sector. Numerous scholarly contributions have explored this connection, positing that open data fosters open innovation in services by granting external entities access to government data, enabling valuable applications for public use (Yang & Kankanhalli, 2013). Consequently, proponents contend that by adopting the open service innovation approach, externally developed new or improved services can benefit both government agencies and the general public (Yang & Kankanhalli, 2013).

The research results in question two confirmed the existence of a uniform understanding by government policy practitioners and experts of the critical concepts in digital government transformation. Linked to proposition 1 in the literature review, what the findings show under this question is that there is no lack of common understanding among the stakeholders about the international standard/ benchmark on what constitutes a robust digital government transformation agenda and what its fundamental tenets should entail. The findings also confirm the shared understanding of public sector innovation and its role in digital government. The findings also support the hypothesis in Proposition 5 that open government data provides an opportunity for innovation in digital government.

5.4 Discussion pertaining to Research Question 3

5.4.1 Theme 5: User Driven

Participants shared similar viewpoints on what public sector innovation entails. They view public service innovation as any process or idea that improves service delivery. Currie et al. (2008), as cited in Mathews et al. (2009), delineates innovativeness within the public sector as “the pursuit of imaginative, unconventional, or original solutions to

problems and needs, encompassing the development of new services, novel organisational structures, and enhancements in processes" (Matthews, Lewis, & Cook, 2009, p. 21).

The participants further explained that public sector innovation is an approach, process, or service introduced to deliver results. This view is consistent with Mulgan (2007), who argues that public sector innovation concern is about ideas that work and not just ideas that are good or trendy but ideas that have a verifiable impact on the public. Similarly, within the South African public sphere, public sector innovation is delineated as "the progression of converting an idea, typically originating from research and development (R&D), into an enhanced product, service, process, or methodology that aligns with the government's mandate and addresses the genuine societal needs" (Centre for Public Sector Innovation, 2008, p. 17).

More than half of the research participants indicated no policy or strategy for public sector innovation in SA. However, some of the participants indicated that even though there is no policy and or strategy, there is an explicit public sector innovation mandate in the Public Service Act of 1994, which gives the Minister of Public Service and Administration the mandate to establish norms and standards on innovation (Department of Public Service and Administration, 1994). Furthermore, the research participants highlighted the existence of the Centre for Public Service Innovation as further proof of a government policy on public sector innovation. The OECD's framework on public sector innovation advocates for the creation of an environment conducive to innovation by formalising the endorsement and authorisation for innovation to thrive, emphasising the explicit acknowledgement of the necessity for, and dedication to, fostering innovation within the public sector (Kaur, Buisman, Bekker, & McCulloch, 2022). The literature also addresses the catalysts for innovation, particularly emphasising the effectiveness of policy formulation and the government's capacity to establish robust policies and regulations that foster an environment conducive to innovation (Jerzyniak, 2017).

5.4.3 Theme 6: Proactive

The research participants named e-platforms like e-services, e-tender platforms, and SARS e-filling innovative applications of ICT in the South African public sector. It is

critical at this point to indicate that for this research, digital government initiatives are considered innovative when they fully meet the needs of the citizens and, therefore, create public value for the citizenry (United Nations Department of Economic and Social Affairs, 2013).

Considering the widespread innovative utilisation of mobile technologies, particularly in developing nations, to deliver essential public services, alongside the increasing adoption of open government approaches encompassing data and public policy discourse in e-participation, it can be inferred that significant strides have been made in digital government innovation globally. However, the examples furnished by the participants do not meet the criteria to be categorised as digital government innovations (United Nations Department of Economic and Social Affairs, 2013).

The participants were asked questions about the two projects selected as case studies for the research. The purpose of this question was to confirm with the participants, policy experts and practitioners whether these projects qualify to be classified as digital government initiatives. Revisiting the definition of digital government in the literature is essential to clarify the characteristics of digital government initiatives. One of the critical characteristics of digital government is to put the focus on user needs (OECD, 2019).

Initial e-government initiatives sought to transition analogue processes and services to digital platforms, diminishing dependence on paper-based and in-person procedures while enhancing efficiency within specific domains. Nonetheless, the outcome frequently manifested as fragmented and focused primarily on government priorities (Gonzalez-Zapata & Piccinin-Barbieri, 2021). Digital government, on the other hand, aims to take advantage of digital data and technology to transform how government delivers services (Gartner, 2022).

5.5 Discussion pertaining to Public Sector Open Innovation Case Studies

5.5.1 Theme 7: People (empowering the workforce to achieve innovation)

The data findings in Chapter 4 indicate that the culture of innovation was prevalent to a certain extent in both case studies. Members of the project management team also

possessed innovation management skills. Some of the research participants indicated in the case of DCOG that the GovChat initiative was informed by an innovative perspective by individuals in the department. Furthermore, the participants indicated that there was strong leadership pushing for innovative ideas. This is in line with innovation management theory, which argues that one of the critical factors for success in innovation is the people, especially the creativity, drive for innovation and leadership championing innovation (Goffin & Mitchell, 2017).

5.5.2 Theme 8: Knowledge (Generating and sharing ideas)

As the literature review indicates, knowledge management is crucial to managing innovation. Establishing a diverse team so that a more comprehensive array of viewpoints can enhance ideas is equally critical (Loren, 2011). In both case studies, participants stated that the teams' exposure to international best practices based on participating in global multilateral coalitions motivated the need for improvement. Equally, research participants who work in government acknowledge that the input also came from civil society partners. In the case of GovChat, the DCOG indicated that it was exposed to innovation through the Open Government Partnership. This demonstrates the importance of creating an environment that supports knowledge exchange and creativity as essential factors in innovation.

5.5.3 Theme 9: Ways of Working (Tackling Complexity)

A common thread in the case studies is the government's and civil society's partnership. There was joint conceptualisation of the project and management of project implementation. In the case of Vulekamali, civil society came together through an open coalition called Imali Yethu to actively support the development of the portal (National Treasury, 2018). Joint steering committee structures were also established for the management of the projects. The concept of co-creation is prominently featured in the responses by participants regarding the nature of the project management model. This aligns with the concept of coupled open innovation discussed in the literature review. Coupled open innovation involves co-creating the innovation with different parties' involvement (Pikkarainen, Hyrkas, & Martin, 2020). Co-creation is at the heart of open government theory as a critical ingredient for making governments

more effective and efficient by opening up space for citizens to be part of solution design, implementation, and monitoring (Open Government Partnership, 2011).

5.5.4 Theme 10: Rules and Regulation (Innovating in the context of existing rules)

Financial and human resource allocation is significant for public sector innovation to take root. Furthermore, there is a need to create regulations and laws that promote innovation or relax existing laws and regulations to allow for innovation to take place (Daglio, Gerson, & Kitchen , 2014). The findings from the data in Chapter 4 indicate limited budget allocation in both projects, signalling inflexibility and lack of agility. Participants also stated that the lack of integration and silo approach hindered the success of the project.

5.5.5 Theme 11: Ambition (Stretching governments practice)

Regarding the research findings in Chapter 4, the Vulekamali case study can be classified as an adjacent innovation. The research participants indicated that when the project was initiated, South Africa was already a leading country in the Open Budget Index, and it was publishing extensive budgetary information on the website. However, it had been observed that the use of the data was not extensive, and therefore, there was a need for a portal to make the data easily accessible in a user-friendly form, making information sharing, analysis and research more effective (Openup, 2018). As posited by academics, adjacent innovation entails venturing into a novel market and engaging with a fresh audience by capitalising on an existing organisational strength (Nagji & Tuff, 2012).

Regarding stretching beyond the current baseline, the research participants indicated that the Vulekamali was successful because of the increase in the platform user statistics and the journalist usage of the platform data in newspaper articles and opinion pieces. For example, in an opinion piece in Bloomberg magazine by Ngozi Okonjo-Iweala (2020), the Vulekamali portal is lauded as a global standard for opening up government budget data and enabling easy data analysis. For example, in a GroundUp article on housing funding, the journalist used the Vulekamali portal to source the national human settlement budget data. (Eglin, 2022).

The participants also highlighted that the Vulekamali innovation initiative enabled cost savings, improved government responsiveness, and was designed in collaboration with external partners based on user needs.

In the case of GovChat, the participants indicated that the opening up of data was limited to sharing and integration between the sphere of government and departments with plans plants to enable cross-platform integration. “Government data interchange among government agencies is critical in the early stages of OGD initiatives”, as it enables replication of OGD as an innovation approach (Wang & Lo, 2016). This has proven to be the case with GovChat as more government agencies have adopted it as a platform, albeit in a modified format. The State Social Security Agency (SASSA) adopted GovChat as a platform to roll out the Social Relief of Distress Grant applications introduced as a response to the COVID-19 pandemic; however, this has been extended to include other types of SASSA applications. Similarly, the Department of Health turned to GovChat, using it as a COVID-19 information platform.

Considering the breadth of influence exhibited by the GovChat project across various governmental levels, from local to national, it qualifies as transformational innovation. Transformational innovation entails the development of entirely novel solutions and comprehensive operational frameworks aimed at addressing complex issues in a wholly unprecedented manner. (Byrne, Charite, Cunningham, & Kluge Foss, 2018). GovChat has been transformative in that, the platform has been able to assist government to leverage data to make rapid decisions that a responsive to the needs of the citizens at the programme delivery level. It has also significantly changed the SASSA operation model including altering the operating models of municipalities where the GovChat complaint management system has been rolled out.

5.6 Summary of the Discussion

Pockets of Open Government Data initiatives can be found across South African government departments. The literature advocates for intensifying OGD use in the South African government's digital transformation journey. Furthermore, the literature demonstrates the potential of OGD to catapult the digitalisation of government services.

The study revealed that the South African public service has not embraced the culture of innovation and that where innovation has been adopted, the change has been transformative, signalling the need to intensify innovation in the public sector. The case studies used further demonstrate the potential of innovative approaches to service delivery, from co-creation to user-centric programme design approaches and leveraging data for policy development.

It is evident that the digital transformation of the South African public service is not a vision commonly shared by government leadership. Adopting public sector innovation practices holds great promise for unlocking the government's potential for higher levels of digital government transformation.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter consolidates the findings presented in Chapter 4 and the discussion in Chapter 5 to conclude the research report. The conclusions provided in this chapter are based on the data findings responding to the study's research questions. The chapter further makes recommendations for role players in public service innovation and digital transformation policy development. Finally, the chapter identifies gaps for future studies in public sector innovation, focusing on digital transformation.

6.2 Conclusion regarding Research Question 1

The research findings lead the research to conclude that the South African government has performed below expectations over 22 years since the release of the Public Service IT Policy Framework in 2001, which was aimed at ushering in e-government and a digital future (Department of Public Service and Administration, 2001).

The findings reveal that South Africa remains at the initial/e-government phase in the Gartner government digital maturity model. Whereas a review of international trends over the years demonstrates a shift from e-government to full-fledged digital government, where public services are designed to meet the changing needs of citizens using technologies and data (OECD, 2014).

The research findings demonstrate that the SA government views open government data as a strategic resource to enhance digital transformation in the public service.

The research findings show that the relevant policy role players share common objectives on digital transformation and that these are clearly defined and understood across government. Despite the commonly shared digital transformation agenda, the research findings show a fragmented process. The digital government mandate is split between the Department of Communications Digital Technologies and Public Service and Administration. As a result, multiple stakeholders and initiatives are involved in government digital transformation, resulting in low or no impact.

Recommendations

Based on the research findings, a strong case is made for a Whole-of-Government Approach (WGA) to digital government transformation in South Africa. This approach enables joint activities performed by different ministries to provide a standard solution (Department of Economic & Social Affairs, 2012). This approach also unburdens the administration from silos and enables a more integrated approach to public service delivery. Strengthening the coordination and skills

The potential of the use of data and digital technologies to leapfrog the development trajectory for South Africa is great (Amaglobeli, de Mooij, & Moszoro, 2023), therefore, the upward move of the SA government in the digital government maturity indexes should be one of the main priorities.

Another critical consideration should be to ensure the incorporation of a digital-by-design element within the digital transformation strategy. This would mean that the government fully harnesses digital technologies' capabilities right from the outset during policy formulation and service design, irrespective of the delivery channel utilised.

Leveraging government data to enable citizen-centric services is a critical element of the government's digital agenda (OECD, 2016).The research findings reveal that policy practitioners regard open government as a critical aspect of digital government. The participants confirmed that digital government data is vital for giving government officials insights to customise services based on citizen needs. Therefore, the development of open government data policy should also be prioritised in the digital transformation journey of the South Africa government.

6.3 Conclusion Regarding Research Question 2

A significant insight in the study is the confirmation that the South African government, at the policy and programme implementation level, has a set of commonly agreed-upon digital transformation goals or objectives that align with international standards. This is a strength that must be fully exploited because, to manage digital transformation successfully, there is a need for a shared strategic outlook at a national government level to enable an impactful implementation.

The participants in the study strongly validated the connection between OGD and open innovation within the public sector, affirming that OGD fosters open innovation by granting external entities access to government data. This access enables them to develop valuable applications or services for public benefit. Research participants agreed with the classification of OGD as a public-sector innovation; they further confirmed the potential of ODG as an approach to managing innovation in the public sector. ODG as a public sector innovation management approach will be further expanded in the section dealing with public sector open innovation case studies.

6.4 Conclusion Regarding Research Question 3

Research participants stated that there is a gap between policy and practice within the South African public sector regarding embracing innovation. Even though the Public Service Act places specific responsibility on the public service to innovate and despite the existence of the Centre for Public Service Innovation, public sector innovations are not used as a strategic lever to enhance service delivery as conceived in government policy documents.

The approach to innovation aligns with scholarly discourse suggesting that in numerous public sector entities, innovation often appears as sporadic endeavours lacking coherence, perceived as sporadic and unstructured activities, occasionally viewed as engaging yet lacking discipline, and at times merely regarded as a trendy term.(Holden, Hallberg, Cassidy, & Marsh, 2018). However, from this research and the literature reviewed, we know that investing in innovation can have an incredible impact on public sector goals, with short-term, immediate impact and repositioning the government to respond to future changes.

Recommendations

In line with the view by Holden et al. (2018), the key to managing public sector innovation is balancing risk and return through a portfolio management approach. Therefore, the main recommendation in this area is a comprehensive review of public sector innovation, intending to determine if the existing policy provisions have successfully created an innovation culture in the public service. Depending on the outcomes of the review, the government may consider developing a public sector innovation policy and or undertake an organisational review to ensure the mandate for

public sector innovation has a champion with the requisite capacity to facilitate the adoption of innovations across the public sector.

6.5 Conclusion Regarding Public Sector Open Innovation Case Studies

The research findings reveal that the government leadership has not cogently pursued the vision of digital transformation of the South African public service.

The literature in the study underscores the need to intensify OGD use in the South African government's digital transformation journey. Further study revealed pockets of excellence in Open Government Data in specific government departments.

The study also revealed that the South African public service has not sufficiently embraced the culture of innovation and that where innovation has been adopted, the change has been transformative, signalling the need to intensify innovation in the public sector.

The case studies used further demonstrate the potential of innovative approaches to service delivery, from co-creation to user-centric programme design approaches and leveraging data for policy development.

Therefore, adopting public sector innovation practices discussed in the case studies holds great promise for unlocking the government’s potential for higher levels of digital government transformation.

Recommendations

The recommendations on innovation approaches will be presented below. It is important to note that approaches have been classified, albeit adapted, according to the (Goffin & Mitchell, 2017) pentathlon framework for innovation management as follows:

People: The insights from the study show that success in both case studies was highly influenced by the level of innovative culture in the organisation. The individuals and teams in the organisation had the appetite for trying new ideas driven by ambition to improve how they deliver on the organisational mandate. Based on this, this research recommends a dedicated capacity-building programme for innovation skills. Furthermore, the South African public sector must integrate innovation skills in the

existing competency framework, such as data literacy, iteration, user-centricity and curiosity for new ideas (Observatory of Public Sector Innovation, 2017).

Knowledge: In both case studies, there was an interest in opening the project design process to internal and external players to source new ideas and information that could potentially improve the solution design. For the South African government to be more innovative, there is a need for a change in the policy cycle and programme design processes to allow for ideas generation, which involves different external and internal role players and different methods of ideas generation. This allows the public sector to respond to the changed nature of the operating environment where policy consultations have been replaced by citizen engagements and policy assumptions by citizen feedback and where collaboration is preferred rather than simply relying on the government's ability to mandate and control. A model for managing the ideas generation phase in the policy and programme design is critical for the public service.

Ways of working: The case studies demonstrate the power of a collaborative approach to project management between government and civil society. This approach ensures joint ownership and accountability for project success. Multi-actor collaborations, particularly those that bridge civil society (including the private sector) and the public sector, can significantly enhance public sector innovation. These collaborations can deliver better services by breaking down barriers and allowing the multiplication of ideas and skills (GIZ, 2021). The Imali-Yethu NGO Coalition, which has worked with the National Treasury, presents a model for the proposed collaboration with NGOs. The COGTA-GovChat partnership provides a model for collaboration with the private sector, especially start-ups, where more flexibility exists to co-create service delivery solutions.

Rules and regulations: The composition of the project team and the design of project management models demonstrate the ability to interpret existing rules and regulations to enable innovative approaches. In both case studies, the teams successfully facilitated innovation within the context of existing government policies and legislation. This reinforces the suggestion that innovations necessitate endorsement and support from top-level leadership, emphasising that the innovation process should involve individuals possessing the requisite authority to advance the innovations effectively.

Ambition: In both case studies, the objectives were clearly defined and sufficiently ambitious, stretching each organisation's practices and significantly changing how business processes are managed in each specific area where the project was implemented. In both case studies, the projects targeted citizens as end-users, and we successfully achieved this. This research recommends that the South African public sector must improve its ability to harness the opportunities the “digital revolution” offers, specifically Open Government Data, to develop and implement ambitions that transform the lives of citizens (Tate et al., 2018).

6.6 Suggestions for further research

Whilst this study was limited to exploring open government data and its role as a public sector innovation in the digital government transformation context, a clear case has been made for the potential of open public sector innovations to transform service delivery. This research can be extended to look at other public sector open innovation initiatives beyond the open government data scope, focusing on how the diffusion of these public sector innovations can be enabled across the public service.

This study recommends further studies on whether the existing legislative and policy frameworks create an environment conducive to transformational innovation in the public service.

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APPENDIXES

Appendix 1: Interview Guides

Group 1: Public Service Experts: Project Implementation

Semi-Structure Interview Guide
1. In your opinion, what is the objective of the GovChat / Vulekamali project? 2. Was the project initiated by government or is it a civil society-initiated project? 3. To your knowledge, what led the Department of Cooperative Governance/National Treasury to decide on implementing the project? 4. In your opinion, does this project contribute to improving service delivery? If yes, in what specific aspect(s): responsiveness, efficacy, efficiency, cost saving, if not, what has the project been able to achieve? 5. What is your understanding of open government data? 6. What in your opinion is the importance of open government data? 7. What do you understand by digital government? 8. Why is digital government important? 9. What in your view is public sector innovation? 10. What would you say is the project's relationship with open government data and or digital government? 11. Would you say that GovChat / Vulekamali is an example of public sector innovation? If yes, why? If not, why not? 12. Would you say that the project has been successful? If yes, what would you highlight as evidence of the success? If not, what would be the failures? 13. Do you think the project has the support from the necessary stakeholders within government, if yes, what type of support is provided, if not what is lacking? 14. In your opinion, is the project sufficiently known in government or is it only known by a few who work in a similar space?

15. Do you know of any government department that has shown an interest in using the platform or adapting the project for similar objectives in another department?

16. What has been the public response to the project? What method has been used to measure the public response (User data, customer feedback or other)?

17. Is there a plan to upscale, downgrade or refocus the project?

18. What would you change about the project to make it more successful or to improve its reach and scope?

Group 2: Public Sector Policy Experts

Semi-Structure Interview Guide

1. What is digital government and why is it important in transforming the country?

2. To your knowledge, what are the key digital government objectives for the South African government.

3. What are the key digital government objectives aimed at improving government service delivery?

4. In your understanding of the Gartner Digital Government Maturity Model, where would you place the South African government in terms of the 5 maturity levels – 1. Initial (E-Government) 2. Developing (Open) 3. Defined (Data-Centric) 4. Managed (Fully Digital) 5. Optimizing (Smart) – and why?

5. In your knowledge, what legislation and/or policies are in place to enable the government to achieve digital government?

6. What are the policies and/or strategies in place towards service delivery optimisation in government?

7. Can you list 5 successful digital service delivery initiatives that have been implemented by the South African government?

8. What is your understanding of open government data and its importance in digital government?

9. Are you aware of any policy or strategy on open government data in the South African government?

10. Are you aware of any open government data initiative in the South Africa government?

11. What in your opinion is public sector innovation and its role in digital government?

12. Are you aware of any policy on, or strategy for, public sector innovation in the South African government?

13. Would you agree to the classification of open government data as a public sector innovation?

14. Are you aware of any public sector innovations on digital government that are currently or have previously been implemented by government?

15. How in your view can innovation play a role in realising digital government objectives?

16. Are you aware of the GovChat and Vulekamali projects? Would you classify these as digital government initiatives?

Group 3: Civil Society/ Private Company Experts: Project Implementation

Semi-Structure Interview Guide

1. In your opinion what is the objective of the GovChat / Vulekamali project?

2. Was the project initiated by government or is it a civil society-initiated project?

3. To your knowledge, what led the Department of Cooperative Governance/National Treasury to decide on implementing the project?

4. In your opinion, does this project contribute to improving service delivery? If yes, in what aspect(s): responsiveness, efficacy, efficiency, cost saving, if not, what has the project been able to achieve?

5. What is your understanding of open government data?

6. What in your opinion is the importance of open government data?

7. What do you understand by digital government?

8. Why is digital government important?

9. What in your view is public sector innovation?

10. What would you say is the project's relationship with open government data and or digital government?

11. Would you say that GovChat / Vulekamali is a public sector innovation? If yes, why? If not, why not?

12. Would you say that the project has been successful? If yes, what would you highlight as evidence of the success? If not, what would be the failures?

13. Do you think the project has the support from the necessary stakeholders within government, if yes what type of support is provided? If not, what is lacking?

14. In your opinion, is the project sufficiently known in government or is it only known by a few who work in a similar space?

15. Do you know of any government department that has shown an interest in using the platform or adapting the project for similar objective in another department?

16. What has been the public response to the project? What method has been used to measure the public response (User data, customer feedback or other)?

17. Is there a plan to upscale, downgrade or refocus the project?

18. What would you change about the project to make it more successful or to improve its reach and scope?

Group 4: Independent Expert / Former Public Service Experts

Semi-Structure Interview Guide

1. What is digital government and why is it important in transforming the government and the country?

2. To your knowledge, what are the key digital government objectives for the South African government.

3. What are the key digital government objectives aimed at improving government service delivery?

4. In your understanding of the Gartner Digital Government Maturity Model, where would you place the South African government in terms of the 5 maturity levels – 1. Initial (E-Government) 2. Developing (Open) 3. Defined (Data-Centric) 4. Managed (Fully Digital) 5. Optimizing (Smart) – and why?

5. In your knowledge, what legislation and or policies are in place to enable the government to achieve digital government?

6. What are the policies and/or strategies in place towards service delivery optimisation in government?

7. Can you list 5 successful digital service delivery initiatives (that have been implemented by the South African government?

8. What is your understanding of open government data and its importance in digital government?

9. Are you aware of any policy or strategy on open government data in the South African government?

10. Are you aware of any open government data initiative in the South Africa government?

11. What in your opinion is public sector innovation and its role in digital government?

12. Are you aware of any policy on, or strategy for, public sector innovation in the South African government?

13. Would you agree to the classification of open government data as a public sector innovation?

14. Are you aware of any public sector innovations on digital government that are currently or have previously been implemented by government?

15. How in your view can innovation play a role in realising digital government objectives?

16. Are you aware of the GovChat and Vulekamali projects? Would you classify these as digital government initiatives?

Appendix 2: Participant Information Sheet

Group 1: Public Service Experts: Project Implementation



Enquiries: Prof Mjumo Mzyece

Wits Business School Lecturer (Supervisor)

Tel: +27 (0)11 717 3689

Email: mjumo.mzyce@wits.ac.za

Dear Sir/Madam

My name is Qinisile Delwa, I am a master's student in Innovation Studies at the Wits Business School. Part of the requirements in fulfilment of the master's qualification includes undertaking a research project. My research focus area is on open government data as a public sector innovation and whether public sector innovation can accelerate digital government. For this task, I will be looking at GovChat, a citizen engagement platform and Vulekamali, an online budget platform for a comparative case study. The title of my study is *"Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data"*. As part of the research, I would like to invite you to take part in an interview process as an expert working in the implementation of one of the projects in the case study.

Participation in this research is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question, should you wish to do so. The interview is scheduled to last for 45 minutes.

The restrictions and regulations put in place in the form of the *Disaster Management Act: Regulations: Alert Level 3 during Coronavirus COVID-19 Lockdown* govern the interactions between people to ensure safety and limit the spread of the virus. Therefore the interview will take place virtually on a platform of your choice.

The responses will be completely confidential, and any information you provide during this process will not be used for any purpose other than the intended research. If you have any questions during or afterwards about the research, feel free to contact me on the details listed below. This study will be

written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you. The data collected from this research project will be stored in a dedicated password secured external hard drive for a period of five years, and deleted in accordance with the Protection of Personal Information (POPI) Act guidelines. If you have concerns or complaints regarding the ethical procedures followed for this study, you are welcome to contact the University Human Research Ethics Committee (non-Medical), telephone 011 717 1408, email hrecnon-medical@wits.ac.za

Your cooperation is greatly appreciated.

Yours sincerely,



Ms Qinisile Delwa

Researcher

Cel: 0833128572

qdelwa@gmail.com

Group 2: Participant Information Sheet: Public Sector Policy Experts



Enquiries: Prof Mjumo Mzyece

Wits Business School Lecturer (Supervisor)

Tel: +27 (0)11 717 3689

Email: mjumo.mzyce@wits.ac.za

My name is Qinisile Delwa, I am a master's Student in Innovation Studies at the Wits Business School. Part of the requirements in fulfilment of the master's qualification includes undertaking a research project. My research focus area is on open government data as a public sector innovation and whether public sector innovation can accelerate digital government. For this task, I am looking at GovChat, a citizen engagement platform and Vulekamali, an online budget platform for a comparative case study. The title of my study is *"Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data"*. As part of the research, I would like to invite you to take part in an interview process as a public policy expert working on policy development in the digital government and or government data space.

Participation in this research is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question, should you wish to do so. The interview is scheduled to last for 45 minutes.

The restrictions and regulations put in place in the form of the *Disaster Management Act: Regulations: Alert Level 3 during Coronavirus COVID-19 Lockdown* govern the interactions between people to ensure safety and limit the spread of the virus. Therefore the interview will take place virtually on a platform of your choice.

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study, you are welcome to contact the University Human Research Ethics Committee (non-Medical), telephone 011 717 1408, email hrecnon-medical@wits.ac.za

Your cooperation is greatly appreciated.

Yours sincerely,



Ms Qinisile Delwa

Researcher

Cel: 0833128572

qdelwa@gmail.com

Group 3: Participant Information Sheet: Civil Society/ Private Experts: Project Implementation



Enquiries: Prof Mjumo Mzyece

Wits Business School Lecturer (Supervisor)

Tel: +27 (0)11 717 3689

Email: mjumo.mzyce@wits.ac.za

Dear Sir/Madam

My name is Qinisile Delwa, I am a master's Student in Innovation Studies at the Wits Business School. Part of the requirements in fulfilment of the master's qualification includes undertaking a research project. My research focus area is on open government data as a public sector innovation and whether public sector innovation can accelerate digital government. For this task, I am looking at GovChat, a citizen engagement platform and Vulekamali, an online budget platform for a comparative case study. The title of my study is *"Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data"*. As part of the research, I would like to invite you to take part in an interview process as a civil society expert or an expert working for a private company in the digital government and or open data space.

Participation in this research is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question, should you wish to do so. The interview is scheduled to last for 45 minutes.

The restrictions and regulations put in place in the form of the *Disaster Management Act: Regulations: Alert Level 3 during Coronavirus COVID-19 Lockdown* govern the interactions between people to ensure safety and limit the spread of the virus. Therefore the interview will take place virtually on a platform of your choice.

The responses will be completely confidential, and any information you provide during this process will not be used for any purpose other than the intended research. If you have any questions during or afterwards about the research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the university library website. If

you wish to receive a summary of this report, I will be happy to send it to you. The data collected from this research project will be stored in a dedicated password secured external hard drive for a period of five years, and deleted in accordance with the Protection of Personal Information (POPI) Act guidelines. If you have concerns or complaints regarding the ethical procedures followed for this study, you are welcome to contact the University Human Research Ethics Committee (non-Medical), telephone 011 717 1408, email hrecnon-medical@wits.ac.za

Your cooperation is greatly appreciated.

Yours sincerely,



Ms Qinisile Delwa

Researcher

Cel: 0833128572

qdelwa@gmail.com

Group 4: Participant Information Sheet: Independent Expert/ Former Public Service Experts



Enquiries: Prof Mjumo Mzyece

Wits Business School Lecturer (Supervisor)

Tel: +27 (0)11 717 3689

Email: mjumo.mzyce@wits.ac.za

Dear Sir/Madam

My name is Qinisile Delwa, I am a master's Student in Innovation Studies at the Wits Business School. Part of the requirements in fulfilment of the master's qualification includes undertaking a research project. My research focus area is on open government data as a public sector innovation and whether public sector innovation can accelerate digital government. For this task, I am looking at GovChat, a citizen engagement platform and Vulekamali, and online budget platform for a comparative case study. The title of my study is *"Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data"*. As part of the research, I would like to invite you to take part in an interview process as an independent expert of former public service expert currently working or previously worked in the digital government and open data space.

Participation in this research is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question, should you wish to do so. The interview is scheduled to last for 45 minutes.

The restrictions and regulations put in place in the form of the *Disaster Management Act: Regulations: Alert Level 3 during Coronavirus COVID-19 Lockdown* govern the interactions between people to ensure safety and limit the spread of the virus. Therefore the interview will take place virtually on a platform of your choice.

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you wish to receive a summary of this report, I will be happy to send it to you. The data collected from this research project will be stored in a dedicated password secured external hard drive for a period of five years and deleted in accordance with the Protection of Personal Information (POPI) Act guidelines. If you have concerns or complaints regarding the ethical procedures followed for this study, you are welcome to contact the University Human Research Ethics Committee (non-Medical), telephone 011 717 1408, email hrecnon-medical@wits.ac.za

Your cooperation is greatly appreciated.

Yours sincerely,



Ms Qinisile Delwa

Researcher

Cel: 0833128572

qdelwa@gmail.com

Appendix 3: Consent Letters

Group 1: Public Service Experts: Project Implementation



Consent Form

Name: Qinisile Delwa

Research Topic: Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data

I …….. Agree to participate in this research project. The research has been explained to me and I understand what is expected of me.

I have been informed that this research is part of the requirements in fulfilment of the researchers Masters qualification, and that the focus area is on open government data as a public sector innovation and whether it can public sector innovation can accelerate digital government, It has been explained to me that the researcher is using the GovChat citizen engagement platform and the Vulekamali Online Budget platform for a comparative case study and the title of the study is *"*Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data". My participation in the study is to share information, my perspective, and experience a public service expert working in one of the open data initiatives that are part of the case study.

I have been informed that my participation is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. I am able to withdraw at any time or not answer any question, should I wish to do so.

Confidentiality of responses during data processing, analysis, and presentation have been explained to me, as well as information handling and data storage measures. I have also been provided with the

details of the Supervisor and the University Human Research Ethics Committee (non-Medical), should I have further inquiries or concerns regarding ethical procedures, respectively.

Thus the interview is conducted with my consent, where I am comfortable, and in the language of my understanding.

(Please circle the relevant option)

I agree that the interview be recorded for the collection of data, transcription, and future referencing purposes	YES	NO
I agree that my participation will remain confidential	YES	NO
I agree that the researcher may use anonymous quotes In his research report	YES	NO

Signature…….

Name…….

Date…….

Researcher

Signature…….

Name…….

Date…….

Group 2: Public Sector Policy Experts



Consent Form

Name: Qinisile Delwa

Research Topic: Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data

I …….. Agree to participate in this research project. The research has been explained to me and I understand what is expected of me.

I have been informed that this research is part of the requirements in fulfilment of the researchers Masters qualification, and that the focus area is on open government data as a public sector innovation and whether it can public sector innovation can accelerate digital government, It has been explained to me that the researcher is using the GovChat citizen engagement platform and the Vulekamali Online Budget platform for a comparative case study and the title of the study is *"*Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data". My participation in the study is to share information, my perspective, and experience as a public policy expert working on policy development in digital government and government data.

I have been informed that my participation is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. I am able to withdraw at any time or not answer any question, should I wish to do so.

Confidentiality of responses during data processing, analysis, and presentation have been explained to me, as well as information handling and data storage measures. I have also been provided with the

details of the Supervisor and the University Human Research Ethics Committee (non-Medical), should I have further inquiries or concerns regarding ethical procedures, respectively.

Thus the interview is conducted with my consent, where I am comfortable, and in the language of my understanding.

(Please circle the relevant option)

I agree that the interview be recorded for the collection of data, transcription, and future referencing purposes	YES	NO
I agree that my participation will remain confidential	YES	NO
I agree that the researcher may use anonymous quotes In his research report	YES	NO

Signature…….

Name…….

Date…….

Researcher

Signature…….

Name…….

Date…….

Group 3: Civil Society/Private Company Experts: Project Implementation



Consent Form

Name: Qinisile Delwa

Research Topic: Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data

I …….. Agree to participate in this research project. The research has been explained to me and I understand what is expected of me.

I have been informed that this research is part of the requirements in fulfilment of the researchers Masters qualification, and that the focus area is on open government data as a public sector innovation and whether it can public sector innovation can accelerate digital government, It has been explained to me that the researcher is using the GovChat citizen engagement platform and the Vulekamali Online Budget platform for a comparative case study and the title of the study is *"*Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data". My participation in the study is to share information, my perspective, and experience a civil society or private company employed expert working on digital government and or open data.

I have been informed that my participation is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. I am able to withdraw at any time or not answer any question, should I wish to do so.

Confidentiality of responses during data processing, analysis, and presentation have been explained to me, as well as information handling and data storage measures. I have also been provided with the

details of the Supervisor and the University Human Research Ethics Committee (non-Medical), should I have further inquiries or concerns regarding ethical procedures, respectively.

Thus the interview is conducted with my consent, where I am comfortable, and in the language of my understanding.

(Please circle the relevant option)

I agree that the interview be recorded for the collection of data, transcription, and future referencing purposes	YES	NO
I agree that my participation will remain confidential	YES	NO
I agree that the researcher may use anonymous quotes In his research report	YES	NO

Signature…….

Name…….

Date…….

Researcher

Signature…….

Name…….

Date…….

Group 4: Independent Experts/ Former Public Service Experts



Consent Form

Name: Qinisile Delwa

Research Topic: Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data

I …….. Agree to participate in this research project. The research has been explained to me and I understand what is expected of me.

I have been informed that this research is part of the requirements in fulfilment of the researchers Masters qualification, and that the focus area is on open government data as a public sector innovation and whether it can public sector innovation can accelerate digital government, It has been explained to me that the researcher is using the GovChat citizen engagement platform and the Vulekamali Online Budget platform for a comparative case study and the title of the study is *"*Accelerating Digital Government through Public Sector Innovation: The role of Open Government Data". My participation in the study is to share information, my perspective, and experience an independent expert of former public service expert working or who previously worked in digital government and or open data.

I have been informed that my participation is voluntary and will not include any remuneration or direct benefit. Correspondingly, there will be no disadvantages or penalties for not participating. I am able to withdraw at any time or not answer any question, should I wish to do so.

Confidentiality of responses during data processing, analysis, and presentation have been explained to me, as well as information handling and data storage measures. I have also been provided with the

details of the Supervisor and the University Human Research Ethics Committee (non-Medical), should I have further inquiries or concerns regarding ethical procedures, respectively.

Thus the interview is conducted with my consent, where I am comfortable, and in the language of my understanding.

(Please circle the relevant option)

I agree that the interview be recorded for the collection of data, transcription, and future referencing purposes	YES	NO
I agree that my participation will remain confidential	YES	NO
I agree that the researcher may use anonymous quotes In his research report	YES	NO

Signature…….

Name…….

Date…….

Researcher

Signature…….

Name…….

Date…….

Appendix 4: Ethics Clearance

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/IS333516/134
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (belo

This certificate is only valid if accompanied by formal permission from the relevant stakeholder(s).

Project title	Accelerating digital government through public sector innovation in South Africa
Investigator / Researcher	Ms Qinisile Delwa
Nature of Project	MM (Innovation Studies)
Decision of the Committee	Approved unconditionally
Issue Date of Certificate	2021-03-12
Expiry date	Date of submission of the project report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 Anthony.Stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

	16 July 2021
Signature	Date:

Appendix 5: Permission Letters

the dpsa
Department:
Public Service and Administration
REPUBLIC OF SOUTH AFRICA

Private Bag X916, PRETORIA, 0001 Tel: (012) 336 1000, Fax: (012) 326 7802
Private Bag X9148, CAPE TOWN, 8000 Tel: (021) 467 5120, Fax:(021) 467 5484

Ms Qinisile Delwa
qinisile.delwa@icloud.com/333516@students.wits.ac.za

Dear Ms Delwa

RE: PERMISSION TO CONDUCT RESEARCH: MS. Q DELWA

Your letter dated 18 July 2021 has reference.

The Department has considered your application and grants approval to your request with the following conditions:

- You shall conduct the research using questionnaires and individual interviews virtually in order to comply with Covid-19 guidelines.
- You shall treat all information obtained from the Department in the strictest confidence.
- You shall complete the research within one month, using questionnaires and individual interviews.
- All information must be dealt with in compliance of the Protection of Personal Information Act, 2013.
- You shall submit the final research paper to DPSA after it has been submitted to the University of the Witwatersrand (Wits Business School).
- Please note that interviewees may only participate on a voluntary basis.

The Department takes this opportunity to wish you well in your studies.

Kind regards

MS YOLISWA MAKHASI
DIRECTOR-GENERAL
DATE: 18/8/21

communications
& digital technologies
Department:
Communications & Digital Technologies
REPUBLIC OF SOUTH AFRICA

OFFICE OF THE DIRECTOR GENERAL

Private Bag X860, PRETORIA, 0001 – iParioli Office Park, 399 Jan Shoba Street, Hatfield, PRETORIA
Tel: +27.12.427.8000- Fax +27 12 427 8016 –email: director-general@dtps.gov.za www.dtps.gov.za

Ms Qinisile Delwa
Masters Student
WITS Business School

Dear Ms Delwa

REQUEST FOR APPROVAL TO CONDUCT RESEARCH IN THE DEPARTMENT FOR MASTERS STUDY: TOPIC TITLE: "ACCELERATING DIGITAL GOVERNMENT THROUGH PUBLIC SECTOR INNOVATION IN SOUTH AFRICA: THE ROLE OF OPEN GOVERNMENT DATA".

Your request regarding the above has reference.

Approval has been granted for you to conduct research within the Department for your Masters in Innovation Studies from the WITS Business School. However, this is subject to the signing of the attached confidentiality agreement by yourself and any employees who participate in the research.

The completed and signed agreement should be returned for the attention of **Ms Ellah (Elsie) Kekana, Assistant Director: Skills Facilitator (ekekana@dtps.gov.za)**. Once it has been signed on behalf of the Department, a copy will be forwarded to you and further guidance will be provided to you on whom to contact for assistance with your research request.

Yours sincerely

MS NONKQUBELA JORDAN-DYANI
ACTING DIRECTOR- GENERAL
DATE: 29-07-2021

national treasury

Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

Enquiries : Alfred Tau
Telephone : (012) 315-5455
Email : Alfred.Tau@Treasury.gov.za

Ms Q Delwa
Graduate School of Business
University of the Witwatersrand
JOHANNESBURG
2000

Dear Ms Delwa

PERMISSION TO CONDUCT RESEARCH WITHIN NATIONAL TREASURY

The National Treasury acknowledges your letter requesting permission to conduct research within the National Treasury and are pleased to confirm that your request has been granted. Ms Prudence Cele within the Budget Office will assist you with collating the information required for your research.

While undertaking research at the National Treasury, the following terms and conditions apply:

- You are expected to follow reasonable instructions in relation to the terms of the right of access;
- You are required to co-operate with the National Treasury in discharging its duties under the Health and Safety Act and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while in the National Treasury premises;
- You must observe the same standards of care and propriety in dealing with staff, visitors, equipment and you must act appropriately, responsibly and professionally at all times;
- All information you have gathered remains secure and *strictly confidential* at all times;
- Ensure that you understand and comply with the requirements of the National Treasury Code of Practice and the Data Protection Act; and
- Furthermore, you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

The department may terminate your right to conduct a research at any time either by giving a written notice to you or immediately without any notice if you are in breach of any of the terms and conditions described in this letter, or if you commit any act that NT reasonably consider to amount to serious misconduct, or to be disruptive and / or prejudicial to the interests and / or business of the National Treasury.

You are also requested to note that upon completion of your research, you are expected to share your findings and recommendations with the department for lessons learned.

Please contact Ms Prudence Cele, Director: Budget Reform within the Budget Office on Prudence.Cele@Treasury.gov.za or (012) 395 6791 to assist you with further arrangements and coordination of the information required.

Yours sincerely

L Mseme

LAURA MSEME
ACTING HEAD: OFFICE OF THE DIRECTOR-GENERAL
DATE: 23/7/2021

cooperative
governance
Department:
Cooperative Governance
REPUBLIC OF SOUTH AFRICA

Private Bag X804, Pretoria, 0001 | Tel: 012 334 0600 | 87 Hamilton Street, Arcadia, Pretoria | www.cogta.gov.za

Reference: 5/1/5/1

Ms Q Delwa

Via e-mail: qdelwa@gmail.com

Dear Ms Delwa

REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT DEPARTMENT OF COOPERATIVE GOVERNANCE

Your correspondence dated 18 July 2021 with the above-mentioned subject matter refers.

Kindly be informed that your request to conduct research at the Department of Cooperative Governance about the department's community engagement social media platform in partnerships with GovChat has been approved. Furthermore, you are welcome to invite relevant officials in the department who are responsible for the implementation of the GovChat project to participate in this study.

The department hopes that the information collected will be utilised solely for the academic purpose and completion of your study. This information should be treated with the sensitivity and confidentiality it deserves. As part and parcel of each research study, a consent should be obtained from relevant participants.

It will be highly appreciated if the findings of the research can be shared with the department.

We wish you all the best.

Kind regards,

Ms A Williamson
Director-General: Department of Cooperative Governance
Date: 29/07/2021 .