A Research and Development Model for Planning and Development in South Africa's Provincial Administration: A Case of Selected Provinces.

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DECLARATION OF ORIGINALITY

I, Madikana Jackinah Mokgokong of Student Number 221244818, declare that ”A Research and Development Model for Planning and Development in South Africa’s Provincial Administration**:** A Case of Selected Provinces” is my own work and that all the sources that I have used and quoted have been indicated and acknowledged by means of complete references.

…… ……..

Madikana Jackinah Mokgokong (221244818) Date

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This journey would not have been possible without the support system I have been blessed with. I would not have achieved this mammoth task on my own: I was blessed with selfless people by my side from the beginning to the end. My heart is filled with gratitude for each and every assistance and support I have received from the first day until the completion of this study.

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DEDICATION

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ABSTRACT

Scholars hold a well-established view that Research and Development (R&D) is a strategic tool to accelerate and catalyze government planning and development globally. Hence, countries such as Germany, Japan, China, Belgium, Singapore and the United Kingdom continue to rely on R&D for evidence-based planning and socio-economic development. However, even with the abundance of this evidence, most provincial administrations in South Africa still find it difficult to utilize empirical evidence for planning and development.

It is against this background that the study looked comparatively at the Limpopo, Gauteng and Northwest provincial administrations. The interconnectedness between R&D, planning and development within a South African provincial administration space was investigated by probing the selected provincial planning and development approaches used by these provinces. The study also tackled the discourse of R&D investment and funding in these provincial administrations in South Africa. The theoretical frameworks underpinning the study are the New Public Management Theory and the Public Management Reform Theory.

The study employed a qualitative research method underpinned by a case study research design in order to allow the researcher to comparatively analyse the studied phenomenon in the three selected provinces of Limpopo, Gauteng and Northwest. Additionally, the provinces were purposively selected based on their provincial performances in planning and development. A pilot study was conducted to pre-test the validity and relevancy of the data collection instrument; whereas a full-scale study was later conducted and targeted 22 key informants in the offices of the premier precisely because these offices are the coordinators of planning and development in provinces. The universities of Limpopo, Venda, Northwest and South Africa were included in the study and the representatives of provincial research forums in Limpopo and Northwest Provinces were also probed. The primary data was collected using interviews; secondary data was obtained from reviewed literature and government documents. Data was analysed using a thematic analysis through ATLAS.ti.

The empirical evidence revealed a dearth of reliance on research and development in Limpopo and Northwest Provinces and an underutilization of R&D in Gauteng Province. A key finding of the study revealed that the deeply rooted challenge associated with utilizing R&D for planning and development purposes is that it is viewed not as a priority but as an afterthought, especially

in Limpopo and North West. In Gauteng strides have been made in the investment and funding of R&D, although improvements are needed. There is also a gap between theory, as in what is contemplated theoretically, and policy and practice, as in what is needed on the ground as far R&D funding and investment are concerned.

The study proposes an R&D model for planning and development in South Africa's provincial administration. The model identifies and suggests critical factors needed to influence the role of research and development in government's planning and development. These factors are twofold—internal and external. The internal factors are those that are specifically directed to government as the key role player and the coordinator of planning and development, particularly the offices of the premier due to their strategic roles in provincial administrations. The external factors refer to those that lie outside public administration or government and relate to external institutions, which in this context are the academia/universities, civil society and the private sector. These factors will enable the government to function better and together with these key role players it can successfully execute its mandate of improving the lives of the citizenry and transforming society. Additionally, this model will contribute to the policy landscape in South Africa since its findings and recommendations can be extrapolated to other provinces. The study will also contribute to the body of knowledge on R&D by closing the knowledge gap between the studied phenomenon and its relevance at provincial and local levels.

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ACRONYMS

APPs:	Annual Performance Plans
ARC:	Agricultural Research Council
ASGISA:	Accelerated and Shared Growth Initiative for South Africa
CeSTII:	Centre for Science, Technology and Innovation Indicators
COVID-19:	Coronavirus Disease
CSIR:	The Council for Scientific and Industrial Research
DA:	The Democratic Alliance
DOI:	Diffusion of Innovation Theory
DPME:	Department of Planning, Monitoring and Evaluation
DSI:	Department of Science and Innovation
DST:	Department of Science and Technology
EJELS:	European Journal of Economics, Law and Social Sciences
EXCO:	Executive Council
FFC:	The Financial and Fiscal Commission
FRD:	Foundation for Research and Development
FTE:	Full Time Equivalent
GCRO:	The Gauteng City Region Observatory
GDP:	Gross Domestic Product
GEAR:	Growth, Employment and Redistribution
GERD:	Gross Domestic Expenditure on Research & Development
GGT:	Growing Gauteng Together
GPG:	Gauteng Provincial Government
HEIs:	Higher Education Institutions
HIV:	Human Immunodeficiency Virus
HOD:	Head of Department
HSRC:	Human Sciences Research Council
IASIA:	International Association of Schools and Institutes of Administration
IDP:	Integrated Development Plan
IP:	Intellectual Property
JAAS:	Journal of Asian and African Studies
KEI:	Key Economy Indicators

LDP: Limpopo Development Plan
LED: Local Economic Development
LPREC: Limpopo Provincial Research Ethics Committee
MEC: Member of the Executive Council
MNE: Multinational Enterprises
MOA: Memorandum of Agreement
MOU: Memorandum of Understanding
MRC: Medical Research Council
MTSF: Medium Term Strategic Framework
NDP: National Development Plan
NGOs: Non-Government Organisations
NPM: New Public Management Theory
NPS: New Public Service
NRF: National Research Foundation
NSI: National Systems of Innovation
OECD: Organisation for Economic Cooperation and Development
OtPs: Offices of the Premier
PGDS: Provincial Growth and Development Strategy
PMR: Public Management Reform
PRC: Presidential Review Committee
PRF: Provincial Research Forum
R&D: Research and Development
R, D&I: Research, Development and Innovation
RDP: Reconstruction and Development Programme
ROR: Rates of Return
RSA: Republic of South Africa
S&T: Science and Technology
SDF: Spatial Development Framework
SDGs: Sustainable Development Goals
SERO: Socio-Economic Review Outlook
SMMEs: Small Medium and Micro Enterprises
SONA: State of the Nation Address

SOPA:	State of the Province Address
TH:	Triple Helix Model
TIS:	Technology Innovation System
ToC:	Theory of Change
TUT:	Tshwane University of Technology
UJ:	University of Johannesburg
UL:	University of Limpopo
UNISA:	University of South Africa
UNIVEN:	University of Venda
USA:	United States of America
WITS:	University of Witwatersrand

CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1. INTRODUCTION AND BACKGROUND

The South African state has nine provincial governments that are responsible for the running of provincial administration, which is inclusive of the provision of public goods and services (Mle & Maclean, 2011). In pursuit of such responsibilities provincial governments are hampered by numerous challenges (Moeti & Khalo, 2007; Basdeo & Sibanda, 2013; Presidency, 2014). Some of these challenges as highlighted by Moeti and Khalo (2007), Basdeo and Sibanda, (2013) and The Presidency (2014) include financial constraints, poor management of funds, poor strategic planning, and widespread confusion over the roles of political and administrative leadership. The 1998's Presidential Review Commission (PRC) report also found that provinces such as the then Northern Province (Limpopo Province) and the Eastern Cape were faced with serious administrative capacity challenges, among others (PRC, 1998). Additionally, The Presidency's 20 year review of South Africa 1994-2014 (2014) has supported the preceding statement that South Africa's public administration in general is highly disadvantaged, particularly in provinces such as Limpopo, Eastern Cape and Northwest, which have experienced severe public service challenges over the years, resulting in disparities in public services provision. These provinces have been rated the lowest performing provinces in the last 20 years, hampered with challenges such as human resource capacity, uneven public service performance and disparities in public service provision, among others (The Presidency, 2014). Although South Africa has witnessed some expansion in basic service provision since the democratic dispensation, there are still service delivery shortfalls, especially at provincial levels. Over the years these shortfalls have justified critics in vilifying the provincial government. The national government plays only a small role in this as it does not accord the provinces due significance as the middle sphere of government, something that should be reformed (Sinzane, 1999; Burger, 2014; Moeti & Khalo, 2007).To this end, Moeti and Khalo (2007) and Hoffman-Wanderer and Murray (2007) argue that the provincial government has an important role to play in provision of public goods and service. Notably, its challenges and threats should be observed and mechanisms to strengthen their capacity and capabilities to serve their populace be devised.

Some of the mechanisms to strengthen the capacity and capabilities of provincial government to deliver improved services would include putting research and development (R&D) at the centre of its planning and development (Adams, Kee & Lin, 2001). The linkages between R&D

on the one hand and planning and development on the other are greatly pronounced globally as a combination for accelerating planning and socio-economic development (Adams, Kee & Lin, , 2001; Gyekye, Oseifuah & Vukor-Quarshie, 2012). Hence most developed countries invest largely in R&D with the hope of catalyzing and accelerating development in their countries (Adams et al., 2001; Gyekye, et al., 2012). In view of the importance of R&D in governmental planning and development, researchers often publicly denounce the infrequent use of research by public policy makers and planners in government (Adams et.al, 2001; Gyekye, 2012). Despite the abundance of globally well-established proof of the importance of R&D in government's planning decisions and development, most national, provincial and local governments still find it difficult to use empirical evidence for their planning and development or for making pronouncements, as research is mostly viewed as an "uncertain investment". The relationship between R&D and policy, development and planning therefore continues to be tentative and uncertain in most developing countries (Adams et.al, 2001; Gyekye, 2012). International experience reveals that for various reasons the gap between R&D and planning on the one hand and development on the other seems to be persistently widening. Some of the reasons include that the research is often too narrow in scope, too slow in evolving and too costly to become part of policy deliberations, and that some of the identified problems are already known by planners and policy makers (Adam et al., 2001:200). These reasons may suggest that policy makers and planners and researchers have mismatched views and expectations about what research and development ought to do and be. It is within this context that Adam et al. (2001 hold the view that communication between policy makers, planners and researchers is blurred.

Seemingly, South Africa understands the significance of R&D in planning and development. Evidently, the National Development Plan (NDP): Vision 2030 highlights that research, innovation and technology should be prioritised by "building a properly qualified, professional, competent and committed teaching, academic, research and public service core" and that by 2030, 75% of the university academic staff should hold PhDs either as staff or post-doctoral fellows (NDP; 2012). Simply put, the NDP emphasises that research should dominate the developmental agenda of the country through knowledge production, dissemination and uptake. This context brings together the public sector/government, research institutions such as the National Research Foundation (NRF), the Council of Scientific and Industrial Research (CSIR), the Human Science Research Council (HSRC), the Agricultural Research Council (ARC) and the Medical Research Council (MRC) as well academia/universities. Additionally, these

research institutions and universities have an important role to play as key stakeholders that have the capacity to solve the developmental problems in the country using R&D. It is within this context that this study sought to interrogate the role of R&D in provincial administration, its planning and development processes and also develop an R&D model for South Africa's provincial administration. This study focused on the offices of the premier in Limpopo, Gauteng and North West provinces as well as selected stakeholders such as universities and research forum members in selected provinces.

1.2. STATEMENT OF THE PROBLEM

The Limpopo, Gauteng and North West provincial governments, like many other provincial governments in South Africa, are striving towards improving the lives of the people through planning and development in both a provincial and local spheres. In recent times, these provinces have developed strategic plans with the hope of shaping the socio-economic development of their provinces. At provincial levels some of the strategic plans include macro-economic policies, which are generally known as Provincial Growth and Development Strategies (PGDS), the Research and Development (R&D) Frameworks/Strategies, Policy Development Frameworks, Spatial Development Frameworks (SDF), Integrated Development Planning Frameworks. Additionally, at local levels integrated development plans (IDPs) and local economic development (LED) plans have also been developed across district and local municipalities; all these plans were developed with an aim of shaping the provincial and local government planning and development spaces. With all these strategic plans in place, the provincial and local governments are still struggling with developmental issues centered on socio-economic development and planning, such as poverty, inequality and unemployment, alluded to in the Limpopo Development Plan (LDP, 2014). Therefore, the study sought to probe if South African provincial administrations do invest adequately in R&D and if they do provide sufficient funding for research activities. Furthermore, the study aims to create the basis for R&D to be put at the centre of provincial administrations' planning and development processes and also contribute to the literature as already emphasised that there is dearth of literature on the phenomenon, especially in developing countries and provincial administrations. It is for this reason that this study raises a concern about the role of R&D for provincial planning and development in South Africa's Provincial Administration. There is a dearth of literature on the contribution of research and development to planning and development in provincial

administration. Most of the studies conducted on this phenomenon have concentrated more on developed countries and on their national government more than on their provincial governments. Where developing countries are mentioned it is often also at the level of national government and does not cascade to provincial and local levels. This study will add to the limited body of present knowledge by concentrating on provincial governments and admninistrations.

1.3. RESEARCH QUESTIONS

The general research question of the study is this: what role does R&D play in provincial planning and development? This is elaborated in the following specific research questions:

- What is the role of research and development in provincial planning and development?
- What are the planning and development approaches in the provincial administration?
- How does the provincial administration approach planning and development?
- What are the challenges in provincial planning and development?
- To what extent are provincial government funding and investing in R&D?
- What are the determining factors for R&D investment and funding?
- What R&D model can be developed for South Africa's provincial administration?

1.4. AIM AND OBJECTIVES

The aim of the proposed study is to investigate and explore the role of R&D in provincial planning and development. With this aim, the study will be guided by the following objectives:

- To analyse the role of research and development in provincial planning and development;
- To assess planning and development approaches in provincial administration;
- To establish ways in which provincial administration tackles challenges faced in provincial planning and development;
- To establish the level of investment and funding on R&D in provincial administration;
- To establish determining factors of R&D investments and funding; and
- To develop an R&D model for South Africa's provincial administration.

1.5. THE SIGNIFICANCE OF THE STUDY

The study makes a significant contribution in two ways. Firstly, the study could potentially improve knowledge on the interconnections between R&D, planning and development in provincial administration. The significance of such a contribution is that the study is focusing on provincial administration whereas most empirical evidence on this phenomenon is concentrated on developed countries and national governments rather than provincial governments (Nadiri, 1993; Freeman, 2002; Lundvall, 2002; Lundvall, 2007; Patra, 2017; Tsvakirai, Liebenberg & Kirsten, 2018). Gyekye et al. (2012) have examined the relationship between R&D, planning and development in developing countries; t this study will add a South African provincial administration perspective to the process of theorization. Secondly, the study developed an R&D model for planning and development in a South African provincial administration. The intention of the model is to provide government officials, planners and public policy makers with a deeper understanding that R&D is a catalyst for meaningful planning and socio-economic development. Moreover, the study provides guidance on sustainable approaches to adopt when developing strategic plans and policies to improve the lives of ordinary citizens. Should the mdoel be adopted it has the potential to improve the planning and development landscape in povinces. This will benefit communities that will be provided with relevant basic services that are informed by evidence and realities at the grassroots level

1.6. PRELIMINARY LITERATURE REVIEW

Studies have converged on the view that research is an asset for a government's sustainable development and planning (Adams et al., 2001; Fourie, 2007; Gyekye, Oseifuah & Vukor-Quarshire, 2012). Fourie (2007) states that R&D is a scientific tool used to solve existing problems, thus it ought to be at the centre of planning, development, implementation and monitoring of programmes such as the Reconstruction Development Plan (RDP). Furthermore, Fourie (2007) contends that for rapid growth and development to occur planners and decision makers need R&D in contributing towards improving the lives of the people. These scholars clearly indicate that R&D can be used as both a catalyst and an accelerator for promoting planning and development that is sustainable. Moreover, they emphasise the need to carry out impactful research that is purposeful and not only done for its own sake. Fourie (2007:65) argues that the conduct and application of "operational research" addresses developmental challenges in most developed countries. Additionally, when operational research is undertaken with a

missionary dedication rather than as a mere consultant and public relations exercise it can be impactful and can improve the socio-economic situations of citizens (Rosenhead & Tripathy, 1996)).

However, it should be noted that there is a dearth of literature on the contribution of R&D in provincial administration and its planning and development. Generally, the majority of studies conducted on this phenomenon have concentrated largely on developed countries at the national level of government more than on provincial government (Nadiri, 1993; Freeman, 2002; Lundvall, 2002; Lundvall, 2007; Patra, 2017; Tsvakirai, et.al, 2018). For instance, Gyekye et al. (2012) note that most literature focuses on the link between research and innovation and socio-economic development in developed countries and that developing countries have not really been the focus of most studies that are studying this phenomenon. Nadiri (1993); Griliches (1994) Bassanini and Scarpetta (2011) and de la Fuente and Ciccone (2002) have produced empirical evidence on the impact of R&D in developed countries such as the USA, Japan, France and Germany. These studies confirm that R&D is key for sustainable socio-economic development, planning and economic growth. These studies and many others support the general contention that R&D is critical for developing countries and more importantly for provincial economies as it can be attributed to scientific and technological innovation, which can be translated into commercial products. Furthermore, it should be noted that it is through R&D that the lives of the people can be improved. The fact that little research has been done about the link between R&D and planning and development in provincial administration is worrisome as it may suggest that there is no R&D advocacy either from the academics/researchers' front or from the government's side. Additionally, this literature gap should be closed through the creation of more knowledge on this phenomenon by focusing on both provincial and local government. A state's striving to improve the lives of the people through the provision of public goods and services as mandated by the Constitution of the Republic of South Africa is greatly dependent on empirical evidence to form the basis of their planning and developments (Nadiri, 1993; Griliches, 1994; Bassanini, 2001; and de la Fuente & Ciccone, 2002; Maserumule, 2017) Conversely, as already alluded to, there is a dearth of such empirical evidence that is cascaded to the provincial level and it is hypothesized that one of the reasons for provincial administration's planning and development not being linked to R&D could be that researchers and academics have not sufficiently investigated R&D as a critical factor to fuel and accelerate planning and sustainable development, especially at the provincial level. Hence, this study will

also be contributing to the body of knowledge on this phenomenon while simultaneously investigating the use of R&D for provincial planning and development.

Generally, in African countries the thin spread of research funding and investment on R&D is behind the inefficiency and ineffectiveness of some of the sectors, such as agriculture (Tsvakirai, Liebenberg & Kirsten, 2018). It has been documented that the government's inability to support and invest in R&D is an impediment for production, growth and development in most developing countries (Gyekye et al., 2012; Pardey, Andrade, Hurley & Liebenberg, 2016). With the abundance of this evidence it is therefore crucial for governments to consider putting measures in place to strengthen their systems to support and invest in R&D (Pardey et al., 2016). According to the OECD Science and Technology Indicators (2017), South Africa's gross expenditure on R&D is between 0.8-0.9%, which is far less than other countries, both developing and developed. For example, Korea's and Israel's expenditure on R&D is around 4.5% (OECD Science and Technology; 2017). With these illustrations it is only fair to say that South Africa's commitment towards investing in R&D is deplorable; until such time that decision makers understand that investing in R&D is significant for proper planning, sustainable development and to boost the country's economy, then national, provincial and local governments will always struggle to achieve their mandate. It has been proved that in areas where investment has occurred or continues to occur, effectiveness and efficiency transpire. For example, a review on South Africa's rate of return (ROR) showed that the returns in the public agricultural sector R&D was at least 40% (Khatri, Thirtle & van Zyl, 1996; Pardey et al., 2016). It was also found that in the South African wine and fruit technology sector where investment on R&D occurred, the ROR rose by between 40% and 60% (Thirtle, Townsend, Amandi, Lusigi & Van Zyl, 1998). Such evidence is important as it shows that investment in R&D is important for the development and growth of the country through the development and growth of provincial and local economies, which translates into sustainable development and also curbs unemployment and poverty. It is therefore imperative for governments in all spheres to understand that R&D investments and funding are important for sustainable development.

South Africa's research institutions and councils also have a big role to play in the R&D space of the country. With that being said, the role played by research institutions such as NRF, CSIR, HSRC, ARC and MRC within the R&D space cannot go unnoticed. Notably, a larger portion of the research institutions/ council budget comes from the Department of Science and Innovation

(then DST), which receives its budget from National Treasury. The performance of these research institutions and councils depends largely on the budgetary allocations from national government. They in turn have contributed significantly towards South Africa's R&D and Innovation by supporting universities and other industries nationally. For instance, the CSIR has created over 105 companies over the years, of which 54 are still thriving (CSIR Shareholder's Compact, 2019). One might wonder how many of those companies are contributing to the growth and development of provincial and local economies. According to the CSIR Shareholder's Compact (2019) 92 small, medium and micro enterprises (SMMEs) were supported, 13 new patents were granted and 5 new priority patents application were filed in the financial year 2019/2020.

A glimpse into the works of the HSRC has revealed financial challenges that the council faces in achieving its mandate. According to the HSRC presentation made to the Parliamentary Select Committee on Communications and Public Enterprise on 8 March 2017, the mandate of the HSRC includes addressing developmental challenges by means of projects linked to sector-oriented collaborative programmes, helping build research capacity and infrastructure for human sciences, fostering research collaborations and responding to the needs of the vulnerable and marginalised groups. The council has been engaged in a number of research projects at a national level, including the South African National HIV Behavioural and Health Survey, Trends in International Mathematics and Science Study; at local levels the Department of Science and Technology (DST) funded project Rural Innovation Assessment Toolbox, which aimed at finding developmental solutions to rural problems at resource-poor local municipalities and jointly worked with universities to strengthen the capacity of local economic development (LED) offices. Despite this, the South African government needs to do more in research funding and investment, also integrating these works of the councils with the planning and development functions in provincial administration.

1.7. LIMITATIONS OF THE STUDY

As indicated in the methodology, the researcher had initially sampled 22 respondents which are inclusive of three officials in each of the sampled Offices of the Premier, two research fora members in each sampled provinces, two universities in Limpopo, One in Northwest and four universities in Gauteng, namely the University of Johannesburg, the University of the Witwatersrand, the University of South Africa and Tshwane University of Technology. However,

the researcher failed to collect data from Tshwane University of Technology, the University of Johannesburg and the University of the Witwatersrand and from research forum/structure members in Gauteng due to their lack of interest in participating in the study. Due to this limitation the researcher ended up interviewing informants from only four universities and research for a members from Limpopo and Northwest, which nevertheless provided great insights on the role of R&D in planning and development within the provincial administration and on the universities' relationship with provincial administration. This lack of participation from the aforementioned institutions reduced the sample size from 22 respondents to 19; however, at the 19th respondent the researcher had already reached a point of data saturation. The researcher could not force the selected key informants to participate as it is unethical to do so; participants should participate in the study voluntarily.

1.8. DEFINITION OF TERMS

The study sought to define the following terms in order to provide a clear and meaningful understanding about underlying issues around R&D and its relationship to provincial planning and development. The definitions are derived from other scholars; the researcher will therefore adopt the relevant definition within the context of the proposed study.

1. 8.1. Research and Development

In their article, Gyekye et al. (2012) explain that the concept 'research and development' was first defined by the Organisation for Economic Cooperation and Development (OECD) in 1963 at a conference in Italy as "creative work undertaken on a systematic basis in order to increase the stock of knowledge including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications" (Gyekye et al., 2012:916). Over the years a notion that R&D implied technological innovation has eroded; it has been proved significantly that in fact R&D is multidisciplinary as it embraces different disciplines and sciences, such as economic, social and management science. Thus R&D has the ability to grow economies and promote socio-economic development.

1.8.2. Planning

According to Wildavsky (1973), the concept of planning conditions the way planners and societies perceive social problems and how they resolve such problems. Planning is a complex term because it is usually contextual within different fields and disciplines. For instance, within

the context of municipal affairs and activities it can be described as the zoning of lands and the establishment of new areas. In this context it can be used to define the control and regulation of the use of land (Van Wyk, 2012). It has been observed by scholars that planning has over the years been lagging behind in all spheres of government and at all levels of society, including national, regional, local, urban and rural (Banugire, 1977). According to Banugire (1977), planning can be analysed both as procedural theory or theory *of* planning and also as substantive theory, which is theory *in* planning. Banugire (1977) explains that the former should be aligned to a theory of planning activity and the latter to what is called a theory of area of concern of planning activity. Disregarding these theories may result in having various social problems for development planning.

1.8.3. Development

The concept of development is a slippery one as it is often used across different disciplines and fields. However, at the core of its conceptions in public administration and development planning and management; development means the attainment of the three core values of improved standards of living, high self-esteem and total freedom of choice (Cooke, Gomez & Etxebarria, 1997; Cooke, 1996; Fitzgerald, McLennan & Munslow, 1997; Burger, 2014). In essence, the public would have attained development if they achieve and receive things that they would not have been able to receive before public goods and services were provided. In accordance with this definition, research would imply the role it plays in shaping government's socio-economic policies and plans. In other words, for research to play a vital role in improving the lives of the people, various role players would need to be involved, i.e., government, business, academic institutions and the public. In the context of this study, development refers to the attainment of opportunities, growth, services and infrastructures to improve one's life.

1.8.4. Research

Broadly, research refers to an attempt to experiment, study, observe, analyse and record data to discover new facts, knowledge and information in order to significantly improve existing applications (WCB, 2008; Malefane, 2008). Furthermore, Malefane (2008) explains research as an important element undertaken by municipalities and governments in order to gain knowledge and understand broader needs, wants and expectations of the local population. Link (1982) adds that research is a phenomenon that is largely concerned with searching for technical and

scientific advancement and developments and translating them into something meaningful, such as products or innovations.

1.8.5. Public Administration

In his article “The Study of Administration”, Woodrow Wilson, viewed by Americans as the father of public administration, contended that “it is the object of administrative study to discover, first, what government can properly and successfully do, and, secondly, how it can do these proper things with the utmost possible efficiency and at the least possible cost either of money or of energy” (Aderibigibe & Olla, 2014: 67). It is this article that made Wilson influential in the realm of public administration science due to the advocacy of four key concepts as the essence of what public administration ought to be (Aderibigibe et al., 2014). These four concepts have been highlighted by Aderibigibe et al. (2014: 67) as follows:

- Separation of politics and administration;
- Comparative analysis of political and private organisations;
- Improving efficiency with business-like practices and attitudes towards daily operations; and lastly
- Improving the effectiveness of public service through management and by training civil servants.

The definition of public administration as a practice and Public Administration as a discipline has been debated for decades. Scholars have long had different perspectives towards this particular science. According to Aderibigibe et al. (2014: 65), public administration as a practice is “the implementation of government policy” whereas as a discipline Public Administration is an “academic discipline that studies this implementation and prepares civil servants for this work”. In essence, public administration involves the translation of public policy into reality through managing different projects and programs within the public sector (Aderibigibe et al., 2014). Aderibigibe (2014)’s definition accords with notions expressed by Hodgson (1969) who emphasise that public administration as a practice consists of all the necessary operations that are purposefully geared at fulfilling the purpose of government and its agencies, which is primarily to deliver goods and services through the implementation of public policy.

Donald (2010) and Kenneth (2010) contend that there is no generally accepted definition of the concept “public administration” since its scope is great and highly contested. It is therefore easier

to explain than to define. Aderibigibe et al. (2014) note that attempting to define it is frustrating since it is both a field of study, i.e. a discipline, and an occupation or a profession. Locating this discipline properly remains debatable as some scholars place it as a sub-field of political science and others as a subfield of administrative and management science (Donald, 2010; Kenneth, 2010 & Aderibigibe et al., 2014).Cloete (1992) explains that public administration encompasses activities, processes and functions that enable public institutions to deliver public goods and services. He argues that public administration is a distinctive field of work performed subject to normative rules that demonstrate its distinctiveness. This study adopts the views of both Cloete (1992) and Aderibigibe et al. (2014) as both definitions mesh well with the position of this study on the role of R&D and its relevance in shaping public administration as a practice and how this practice should assist public institutions to respond to the needs of the people by providing goods and services.Based on these definitions from various scholars, public administration can be viewed as firstly as an integral view and part of government's comprehensive activities on their day to day functioning and implementation of public policy as public institutions and secondly as a "managerial view that appears narrower and possibly manageable" (Marume, 2016:19).

1.9. CHAPTER OUTLINE

The study comprises nine chapters.

Chapter One: This chapter provides a general introduction and background to R&D for planning and development within South Africa's provincial administrations, including its research questions, aims and objectives. It also provides a problem statement to clarify the context and relevance of the study.

Chapter Two: This chapter presents a literature review of R&D and its relationship to planning and development in provincial administrations. It also provides the frame within which the study is based and the reationale for the study, detailing the nexus between R&D and planning and development.Chapter Three: This chapter is also a literature review, focusing specifically on the relationship between planning and development in South Africa's public administration. The linkage between planning and development and public administration is thoroughly interrogated in this chapter and the rationale of their interconnectedness is explored. The chapter also

discusses theories and models of planning and development as well as approaches to public administration.

Chapter Four: This chapter discusses the conceptual frameworks adopted for this study, providing an insight on the relationship between the concepts and variables of the study. The chapter further provides a conceptual map by focusing on critical concepts in this study.

Chapter Five: The chapter presents the research methodology, covering the research methods and designs as well as sampling, data collection and data analysis. The chapter provides details on how the study was conducted. Issues such as the research design, sampling methods, data collection, and data analysis. The pilot study/phase of the project is discussed in detail. The chapter also discusses key ethical considerations and principles in the context of the study.

Chapter Six: The focus of this chapter is on data analysis and interpretation of the research findings, commencing with the overall demographic profiles for all respondents in the study, and concluding with the qualitative findings guided by the themes related to the research questions and objectives of the study.

Chapter Seven: This chapter focuses on the presentation, analysis and interpretation of findings on the perceptions of universities on R&D and planning and development within the provincial administration. It discusses the role of the universities in provincial administration and the effectiveness of the partnerships between the universities and the provincial administration.

Chapter Eight: Chapter eight provides findings from the document analysis that concentrated on the Government's strategic documents in the three selected provinces of Limpopo, Gauteng and North West. The chapter analyses the Provincial Growth and Development Strategies (PGDS) in Limpopo, Gauteng and Northwest province, the Frameworks on R&D, and the annual and budget reports from the selected provinces between 2017/18 and 2022/23. Chapter Nine: This chapter provides a summary, conclusion and recommendations of the study, including the proposed R&D Model for planning and development for provincial administration. The chapter concludes with insights on the role research and development should be playing in provincial administration in South Africa.

1.10. SUMMARY OF THE CHAPTER

This chapter provides a frame for the study on R&D for planning and development in the provincial administration. Items on introduction and background and the problem statement provided an outline of what the study essentially entails and focuses on. The chapter also provides the research questions, which are aligned to the aim and objectives of the study, providing an indication of the answers the study will be providing. Furthermore, the significance of the study was also provided to highlight the contribution this study to the body of knowledge in the field of public and administration and planning and management, also pointing out its relevance to government. A limitation of the study was included, explaining that the lack of desire to participate by some potential respondents accounted for the deviation from the initial research proposal. The chapter concluded with a synopsis of the entire study to provide the reader with an idea of what to expect in the rest of the document. The next chapter will be providing discussions on R&D and its relationship to planning and development in provincial administrations.

CHAPTER 2: GENERAL DESCRIPTION OF RESEARCH AND DEVELOPMENT AND PLANNING AND DEVELOPMENT: INTERNATIONAL AND SOUTH AFRICAN PERSPECTIVES

2.1. INTRODUCTION

According to Rowley and Slack (2004), literature review is an important element of a dissertation because it informs the researcher about the existing literature in a specific field of study. Additionally, the literature review process draws on and evaluates a range of sources, inclusive of academic journals and articles, books and web-based resources (Rowley & Slack, 2004). This chapter provides a general perspective on the significance of R&D in planning and development in public administration. It sheds light on the general views of the phenomenon of R&D and its relevance for public and provincial administration. In terms of the flow of discussions, the chapter discusses the R&D phenomenon broadly by providing a background on the phenomenon. It also looks into its various aspects, namely research partnership and collaborations, investment and funding, the Triple Helix Model, the National System of Innovation and its approaches, challenges and possible opportunities for public administrations.

2.2. INTERNATIONAL BACKGROUND ON RESEARCH AND DEVELOPMENT

The concept of R&D was first defined during a conference in Frascati, Italy in 1963 when the Organisation for Economic Cooperation and Development (OECD) defined R&D as a “creative work undertaken on a systematic basis in order to increase the stock of knowledge of man, culture and society, and the use of thus stock of knowledge to devise new applications” (Gyekye et al, 2012:916). Looking at the R&D concept retrospectively, Schumpeter (1934) was the first economist to look at the phenomenon of research and innovation as an enabler for economic growth and economic development. He defined the concept of innovation as “the introduction of new or improved products, production techniques, and organisation structures as well as the discovery of new markets and the use of new input factors” (Gyekye et al., 2012: 916). The argument behind the definition is largely that completion through innovation drives economic development. The argument is significant for this particular study considering that for innovation to take place there is a need for thorough research to take place, which eventually leads to novelty and innovation. Basically, innovation is an outcome of R&D, and studies have proved this (Schumpeter, 1934; Rosenberg, 1982; Perrot, Mosaka, Nokaneng & Sikhondze, 2013). By

implication, the definitions by OECD and Schumpeter (1934) paved the way for R&D advocacy in different spheres of life, such as the socio-political and socio-economic spheres. Over the years, R&D has been acknowledged as a strategic tool for planning and long-term sustainable development, economic growth and socio-economic development (Schumpeter, 1934; Solow, 1957; Adams et al., 2001; Stratmann, 2005; Fourie, 2007; Gyekye et al, 2012). Studies have converged on the view that adopting R&D can fuel innovation and breed commercialisation of products, thus growing economies, creating employment and alleviating poverty and that research (both basic and applied/actioned research) is pivotal for planning and socio-economic development and growth (Gyekye et al, 2012).

However, there's still a need to recognise that research alone is not and cannot be sufficient. Other factors such as political will are necessary and do play a significant role. Research as an exercise and R&D as creative work cannot be done for their own sake; they have to be done purposefully to inform policy making and build the public administration landscape of countries. Hence research partnerships have to be formed for the purpose of research uptake and implementation.

According to Tsvakirai et al. (2018) and Walker and Alwang (2015), research within the agricultural realm dates as far back as in the 1900s, where colonial governments took a decision to invest in research through establishments such as research infrastructures. During the political independence period in the 1950s and 1960s most African countries were able to inherit the research systems from the colonisers (Tsvakirai et al., 2018). Over the years, Africa has seen their research expenditure allocations in the agricultural industry decreasing due to poor research investment and funding by government. These allocations decreased from 91% of R&D expenditure in 1961 to 85.6% R&D expenditure in 1991 (Pardey, Roseboom & Beintema, 1995; Tsvakirai et al., 2018). More recently, in the early 1990s, R&D investments and funding were observed from donor organisations and agencies. A significant increase in investment came from organisations such as The Bill and Melinda Gates Foundation which has resulted in most African governments gradually retracting their financial commitment and support for R&D (Stads & Beintema, 2015; Tsvakirai et al., 2018). Developing countries in Africa in particular are therefore struggling to provide investment and funding for R&D initiatives. Studies have attributed the gradual retraction of research funding and investment within the agricultural sector to various reasons. For example, Walker & Alwang (2015) have attributed it to the shift in Sub-

Saharan African (SSA) governments to social sector spending, whereas Pardey et al. (1995) attribute it to the existing weak link between research and production in African countries. According to Pardey et al. (2016), limited evidence of the benefits of research investment and funding might also be a contributing factor towards the retraction of governments' R&D investment and funding. This is regrettable though, because studies have shown that with proper R&D investment countries can indeed reap benefits both socially and economically.

2.3. AN INTERNATIONAL PERSPECTIVE ON RESEARCH AND DEVELOPMENT FUNDING AND INVESTMENT

The emergence of the knowledge economy across the globe has prompted countries to start introspecting about their preparedness to put research, development and innovation at the centre of their developmental agenda (Kahn, 2007). The concept of R&D funding is not entirely new; over the years, researchers have been internationalizing R&D and have been collaborating and corresponding with each other (Kahn, 2007). Globally, researchers have been travelling widely to exchange knowledge and information through conferences, teaching exchanges, co-authoring and publications of papers and articles and more. Merton (1967) has attributed this exchange of knowledge to the 'universality of science' (Kahn, 2007); these efforts and more can only be done and achieved because organisations and countries see the need to invest in R&D and also acknowledge it as an anchor for the socio-economic development of their countries. Moreover, this can be achieved through collaborative efforts between the public sector, private sector and the research community as a whole, which includes academia and universities/higher education institutions (HEIs).

Countries such as Germany, the United Kingdom, the United States of America, Belgium, Japan, Singapore, and Switzerland have illustrated what seems to be a great appetite for R&D funding and investment (Kahn, 2007). The efforts made by their governments have resulted in the emergence of R&D institutions such as laboratories, platform technologies for electrical energy and petrochemicals, aerospace, automobiles and electronics (Kahn, 2007). Furthermore, multi-national companies and corporations across the globe have established R&D facilities jointly with governments to create an enabling environment for the economies to grow; thus, economic growth has been evident in countries that have invested in R&D and funded R&D initiatives. The growth of every country is dependent on knowledge production as well as investment in and funding of R&D.

Literature has illustrated that over the years most African countries have been lagging behind on the adoption of R&D as a strategic tool for planning and development (Kahn, 2007; Gyekye, et. al, 2012; Pardey, et.al., 2016 and Tsvakirai, et.al., 2018). However, it appears that African countries such as South Africa, Ghana, Kenya and Uganda have developed policy frameworks and programmes that demonstrate the intention to create a nexus between science, technology and innovation and development planning in their respective countries (Jowi & Obamba, 2013). This intention should be applauded; however, it should be noted that these policies, frameworks and programmes have been relatively weak and they have yet to yield positive and tangible results. For instance, Jowi and Obamba (2013) discovered that funding for these programmes and frameworks remains a challenge mainly because there is still lack of prioritization on issues around research capacity, research infrastructure and research investment.

In summary, as already illustrated in these discussions, empirical evidence suggests that R&D investment and funding is growing rapidly amid calls for countries that are lagging behind, especially developing countries, to do things differently and learn from those that have made R&D the anchor of their economies. In his article, Kahn (2007) quotes Mowery and Rosenberg (1998:7), stating that:

> R&D internationalization opens doors not only for the transfer of technology created elsewhere, but also for the technology creation process itself. This may enable some host countries to strengthen their technological and innovation capabilities. But it may also widen the gap with those that fail to connect with the global innovation network.

This implies that the era of R&D has arrived and it is inevitable; funding and investment in R&D is crucial for countries to improve their current state of socio-economic development and economic growth. Countries that fail to do so will be left behind and will be forced to catch up. Indeed, the gap has widened between developing and developed countries. Countries such as Germany, the United Kingdom, the United States of America, Belgium, Japan, Singapore, China and Switzerland are far ahead and the likes of Latin America and South Africa as well as other African states are lagging behind.

2.4. SOUTH AFRICAN BACKGROUND ON RESEARCH AND DEVELOPMENT

Similar to other African countries, the South African R&D on agriculture was also inherited from and largely funded by the colonial and apartheid governments (Tsvakirai et al., 2018; Liebenberg & Pardey, 2011). According to Pardey et al. (1995), through the Department of

Agriculture the Boer Republic of South Africa championed Africa's research excellence from the early 1910s. In 1961 South Africa had 740 full time equivalent (FTE) researchers and other countries in Africa had between 100 and 400 FTE (Thirtle et al., 1998; Tsvakirai et al., 2018). Reportedly, South Africa's agricultural research systems were highly advanced and rated among the best research systems globally (Thirtle et al., 1998; Tsvakirai et al. 2018). Notably, the funding for these research systems was from government (Thirtle et al., 1998; Tsvakirai, et al., 2018). The South African Agriculture R&D is apparently suffering the same fate as the rest of Africa's because funding in agricultural research systems has been decreasing over the years. According to Tsvakirai et al. (2018), private funders and investors have taken over the role of funding for R&D through producer organisation levies. This is not necessarily ideal since funding of this nature is competitive and it can only be allocated on a competitive basis (Tsvakirai et al., 2018). In certain instances, research programmes rely on raising funding "through the sale of its research texts such as technical bulletins and royalties from the sale of cultivars and rootstock licenses" (Tsvakirai et al., 2018:465). These methods of raising funding seem to be working in certain cases but are not necessarily ideal in instances where they rely largely on markets, which tend to fluctuate. Reportedly, the dependence on markets and tax revenues has not yielded positive outcomes on R&D investments in African countries such as Mauritius (Walker & Alwang, 2015; Tsvakirai et al., 2018).

2.4.1. R&D Investment and Funding

R&D investment and funding is emphasised in many countries around the globe, mostly developed countries (Kahn, 2007; OECD, 2014; Pfeiffer & Spengel, 2017). Some countries support R&D in the form of direct R&D grants or subsidies, some of which focus on supporting the development or input phase of a research process while others focus on the income-generating output phase (Pfeiffer & Spengel, 2017).

2.4.1.1. Government's Research and Development Investment and Funding

Studies have shown that where R&D investment and funding occur, growth and returns are generally higher, hence most governments have "created knowledge-based-economies by increasing the rate of transfer of academic and public research advances to industries" (Perrot et.al., 2013:531) in order to improve socio economic development and grow the economy (Scherer, 1982; Bernstein & Nadiri, 1988; Salter & Martin, 2001; Chen, Chen, Liang & Wang,

2019). In other developed countries the trend is for governmental rather than private sector funding and investing in R&D (Chen et al., 2019). Empirical evidence has demonstrated that those countries reap the economic benefits of such public investment in R&D (Chen et al., 2019). It has also been proved that these public investments in R&D have no significant or negative effect on those countries' gross domestic product (GDP). This therefore shows the significance of governmental funding and investment in R&D as a means of maximizing production, growing the economy, improving socio-economic development, and curbing poverty, inequality and unemployment on both the medium and long term. This R&D investment approach is by far the appropriate strategy for resolving developmental challenges in most developing countries, as it has done in developed countries such as the USA, Germany, France and Japan (Nadiri, 1993); Griliches, 1994; de la Fuente & Ciccone, 2002). In the USA, for example, the private sector seems not to have been contributing significantly towards R&D investment and funding, with firms gradually withdrawing from internal scientific research (Arora, Belenzon & Patacconi, 2018); instead the public sector is contributing more in research generation, and the outcome of such public funded basic and applied research may also influence how private R&D investment and fund are allocated (Chen et al., 2019). The link between R&D investment planning and socio-economic development is very evident and it is a global trend that is worth exploring and adopting. However, the disappointing aspect of the literature and evidence on R&D is that it is mostly limited to the national level in developed countries without including provincial and local governmental levels.

Governments across the globe have taken the decision to advance their socio-economic development and economic growth by creating a knowledge-based economy through supporting and promoting R&D activities (Mowery & Sampat, 2005; Perrot et al., 2013). The South African government is not an exception to this trend.

2.4.1.2. South Africa's perspective on R&D funding and investment

As mentioned in the preceding section, South Africa, like most other African states, is lagging behind when it comes to enhancing its R&D investment and funding systems or making R&D a key component for socio-economic development (Kahn, 2007; Walwyn & Cloete, 2016; Velia, Robbins & Tsedu, 2020; Cassiolato, Zucoloto, Abrol & Xielin, 2020). South Africa has long struggled to grow its economy successfully, owing to its inability to strengthen its partnerships with key actors in the research, development and innovation space, both nationally and globally.

One critical option the South African government should consider, as Kahn (2007) has indicated, is to enhance the involvement of all key actors in systems innovation and also include foreign owned companies. Involving and partnering with foreign entities will also create a space for South Africa to play at an international level, be globally competitive and showcase their own capabilities. Examples of what South Africa has to offer to the international community in research, development and innovation (R, D&I) are to be found in mining, tourism, agriculture, aquaculture, marine science, indigenous knowledge systems, arts and more. These are some of South Africa's strengths, whose exposure to the global community can be achieved through funding and investment in R&D.

South Africa has been conducting national R&D surveys dating back to 1966 (Engelbrecht, Featherstone, Matyila, du Toit, Fogwill & Alberts, 2018). Between 1966 and 2001 R&D surveys were conducted by institutions that included the Council for Scientific and Industrial Research (CSIR), the Human Sciences Research Council (HSRC) and the Foundation for Research and Development (FRD). However, this changed from 2002, when the Department of Science and Technology was tasked with the responsibility of commissioning the R&D survey for 2001/2002 with the aim of developing a baseline for future R&D surveys (Engelbrecht et al., 2018). Additionally, from 2002 the Centre for Science, Technology and Innovation Indicators (CeSTII) housed in the HSRC was tasked with the responsibility of conducting R&D surveys in South Africa (Engelbrecht et al., 2018). The Gross Domestic Expenditure on Research & Development (GERD) is undertaken as an indicator of the extent of support for R&D and to check how South Africa is progressing on investing in and funding R&D (Mustapha, Blankley, Makelane & Molotja, 2015). The main contributors of R&D funding and investment in South Africa are government, which includes the science councils, and the business sector (Walwyn & Cloete, 2016; CeSTII, 2021). The government sector funded 47.5% and the business sector 39.5% of the R&D undertaken in the 2018/2019 financial year (CeSTII, 2021)

According to Kahn (2007), the 2004/5 R&D survey showed that South Africa's GERD is at 12.7 billion, which is comparable to countries such as Mexico, Norway, Poland and Turkey (Department of Science and Technology (DST), 2006). South Africa's GERD for 2004/05 was 0.87%, which is low compared to the European Union, whose average is 1.93% (DST, 2006). Interestingly, the GERD in the South African province of Gauteng is 1.42%, which is level with many R&D intensive regions in Europe. The reason Gauteng's GERD is higher than that of other

provinces in the country is attributed to the province being the economic hub of South Africa and Africa (Kahn, 2007; Walwyn & Cloete, 2016; Engelbrecht et al., 2018).

This is a clear indication that South Africa has the capability and potential to enhance the R&D investment and funding of the country by making it the key component of their economic strategy. Interestingly, in their policy brief, Mustapha et al. (2015) highlighted that the South African government's contribution towards investing and funding R&D has long been sluggish, although a target of 1.5% R&D intensity ratio was set to be achieved by 2019 (NDP, 2012). Looking at the 2004/05 GERD ratio of 0.87%, this 2019 target seemed ambitious (Kahn, 2007; Mustapha et al., 2015) as indeed it proved to be. The CeSTII R&D survey report (2021) recorded that the GERD ratio for 2018/2019 was only 0.75% (CeSTII, 2021). Below is a table that illustrates R&D expenditure per sector from the 2009/10 to 2018/19 financial years.

Table 1: R&D expenditure as a percentage of GDP by sector (2009/10 to 2018/19)

Year	GERD/GDP	Government	Science Councils	Higher Education	Business	Not-for-profit
	%	%	%	%	%	%
2009/10	0.84	0.04	0.14	0.20	0.44	0.01
2010/11	0.74	0.04	0.13	0.20	0.37	0.01
2011/12	0.73	0.04	0.12	0.22	0.35	0.01
2012/13	0.73	0.04	0.12	0.23	0.32	0.02
2013/14	0.72	0.05	0.12	0.21	0.33	0.02
2014/15	0.77	0.05	0.13	0.22	0.35	0.02
2015/16	0.80	0.05	0.14	0.24	0.34	0.02
2016/17	0.82	0.05	0.14	0.27	0.34	0.02
2017/18	0.83	0.05	0.14	0.28	0.34	0.03
2018/19	0.75	0.05	0.11	0.27	0.30	0.03

Source: CesTII R&D Survey 2018/2019 (2021)

Table 1 above depicts a decline in R&D funding and investment in almost all the sectors. In fact, the R&D Survey report recorded a decline of 0.08% from the 2017/18 financial year to the 2018/19 financial year (CeSTII, 2021). Conversely, the higher education sector seems to be growing,

although the 2018/2019 financial year recorded 0.27% of GDP, which is a decline comparing to the growth of 0.28 % in 2017/2018 (CeSTII, 2021). The growth of the higher education sector's contribution in the GERD has also been noted by Mustapha et al. (2015) as an indication that this sector has been spending on the production of knowledge capital in the past few years.

Table 2: Proportional government funded R&D by sector (2009/10 to 2018/19)

YEAR	GOVERNMENT	SCIENCE COUNCILS	HIGHER EDUCATION	BUSINESS	NOT-FOR-PROFIT
	%	%	%	%	%
2009/10	10.8	31.3	42.1	15.4	0.4
2010/11	11.0	32.5	46.8	9.2	0.5
2011/12	11.6	34.6	48.1	5.2	0.4
2012/13	11.7	31.1	49.8	6.3	1.1
2013/14	13.0	31.0	48.8	6.2	0.9
2014/15	13.3	33.6	46.8	5.4	1.0
2015/16	9.9	34.1	51.3	3.6	1.1
2016/17	9.3	30.9	56.1	2.8	0.9
2017/18	9.8	29.4	58.0	2.1	0.8
2018/19	10.9	26.6	60.1	1.2	1.2

Source: CesTII R&D Survey 2018/2019 (2021)

Table 2 above shows the proportionality of R&D funding per sector from 2009/10 to 2018/19. The government's contribution peaked at 13.3% in 2014/15 before declining significantly to 9.3% in 2016/2017. A decline in funding of R&D activities is often mirrored in the quality of public goods and service that are delivered by government. Because a lack of R&D funding results in poor service delivery through public policies and programmes/projects, the picture painted above should be of great concern for a country that is working towards being a capable developmental state.

Table 3: Proportional research and development expenditure by socio-economic objectives (2009/10 to 2018/19).

Socio-economic objectives	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	%	%	%	%	%	%	%	%	%	%
Plant production and plant primary product	5.0	5.2	5.1	5.1	6.8	4.6	4.4	5.4	4.4	
Animal production and animal primary product	1.7	1.5	2.5	2.5	3.1	2.4	2.0	2.1	2.1	2.0
Energy supply	2.6	3.1	3.0	2.1	2.3	2.7	2.0	2.0	2.2	2.5
Transport	4.4	4.5	4.4	4.2	4.3	3.4	3.4	3.3	3.2	3.0
ICT	6.6	5.5	5.7	4.9	4.4	5.7	7.3	7.5	5.5	4.8
Health	10.7	10.3	10.4	12.3	11.1	12.4	12.8	13.3	13.2	15.4
Education and training	**2.2**	**2.2**	**2.5**	**2.8**	**3.4**	**4.6**	**5.0**	**3.7**	**3.6**	**3.7**
Social development and community services	2.7	3.5	4.5	3.6	3.3	3.1	3.3	4.3	5.2	3.5

Source: CesTII R&D Survey 2018/2019 (2021)

Table 3 above depicts the proportional R&D expenditure by socio-economic objective from 2009/10 to 2018/19. The annual contributions on this table fluctuate, which may affect how South Africa addresses its socio-economic objectives such as health, education, social development and community services, energy supply, agriculture and more using R, D&I.

In Table 4 below the benchmarking of South Africa's R&D expenditure as a percentage of GDP against countries in the BRICS and other developed countries provides a clear picture of how South Africa is doing in comparison to its counterparts across the globe. This picture is bleak as it puts South Africa last as far R&D investment and funding are concerned.

Table 4: Benchmarking of R&D expenditure as a percentage of GDP (2006/07 to 2012/13)

	South Africa	***Brazil***	***Russia***	***India***	***China***	***Japan***	***South Korea***	***United Kingdom***	***United States***
2006	0.90	0.99	1.07	0.80	1.38	3.41	2.83	1.65	2.55

2007	0.88	1.08	1.12	0.79	1.38	3.46	3.00	1.68	2.63
2008	0.89	1.13	1.04	0.84	1.46	3.47	3.12	1.69	2.77
2009	0.84	1.12	1.24	0.82	1.68	3.36	3.29	1.74	2.82
2010	0.74	1.16	1.13	0.80	1.73	3.25	3.47	1.69	2.74
2011	0.73	1.14	1.09	0.82	1.79	3.38	3.74	1.69	2.76
2012	0.73	1.15	1.13	-	1.93	3.34	4.03	1.62	2.70
2013	0.73	-	1.13	-	2.01	3.47	4.15	1.66	2.74

Source: OECD "Main Science and Technology Indicators", Brazil and India data from UNESCO Institute of Statistics (2014)

The declining trends by South Africa as depicted in Table 4 are worrisome in an era when the knowledge economy is driving the developmental agenda of most countries across the globe (Kahn, 2007). These trends therefore require an imminent decision for the South African government through the Department of Science and Innovation (DSI) and the Department of Planning, Monitoring and Evaluation to lead the drive to increase levels of R&D investment and funding in government sectors, science councils and the higher education sector and also to devise the means and mechanisms to encourage support for R&D investment in the business and private sectors and the not-for-profit sector (Mustapha et al., 2015). Some of the measures that can be adopted in ensuring that this is achieved is through R&D tax incentives, specifically for multinational enterprises (MNE) and large companies (Pfeiffer & Spengel, 2017), which will include the following:

(i). Tax super-deductions: This support falls under input-oriented R&D tax incentives (Pfeiffer & Spengel, 2017). Tax super-deductions are defined as tax measures that aim at reducing a company's tax base by allowing for an inflation of the R&D expenditure base (OECD, 2014). According to Pfeiffer and Spengel (2017), this type of incentive decreases the overall taxable income of a firm, simultaneously providing it with additional liquidity in certain periods of an R&D process. This research support has been seen to be working in developing states in European countries (Spengel & Wiegard, 2011; OECD, 2014; Pfeiffer & Spengel, 2017).

(ii). Output oriented fiscal incentives: this type of research support usually targets the second phase of R&D by providing favourable tax treatment for income generated through intangible assets (Pfeiffer & Spengel, 2017). An example of such output-oriented

tax incentives would be intellectual property (IP) boxes (Atkinson & Andes, 2011; Pfeiffer & Spengel, 2017). The IP Box is defined as a fiscal or tax incentive that provides for corporate income from sales or licensing of intangible assets to be taxed at lower rates than other forms of income (Bloom, Griffith & Van Reenen, 2002; Atkinson & Andes, 2011; Pfeiffer & Spengel, 2017).

South Africa can learn a lot from the developed countries that are already practising this form of R&D support. Of course, this adoption will mean contextualizing this practice within a South African frame. European countries such as France, Greece and Slovakia have been executing R&D tax incentives as a form of R&D support, both as tax credit on R&D, such as super-deductions for R&D expenses and IP Box (Pfeiffer & Spengel, 2017). In contrast, there are still countries such as Germany and Sweden that are lagging behind in the provision of tax incentives for R&D (Pfeiffer & Spengel, 2017). The notion that R, D & I activities are the pillars and anchors of every country's economic development and economic growth cannot be stressed enough (Kahn, 2007; Mustapha et al., 2015). These R, D & I activities translate to a country's economic output such as goods, services, employment and more (Kahn, 2007; Mustapha et al., 2015). The National Development Plan: Vision 2030, which is a macro-economic strategy of the country, has been very clear that South Africa should strive for greater investment and funding in R&D (NDP, 2012). Additionally, if it manages to increase support for R&D investment and funding, South Africa can find itself in a global space competing with the biggest economies in the world such as China, Japan, the United States of America and the United Kingdom.

2.5. RESEARCH COLLABORATIONS AND PARTNERSHIPS: INTERNATIONAL AND SOUTH AFRICAN PERSPECTIVES

Globally, the phenomenon of research collaboration and partnerships across sectors is not new in the discourse (Borgatti & Foster, 2003). However, this phenomenon has gained great popularity in recent years due to changes concerning socio-economic development and societal transformation across nations, regions and localities. This phenomenon has been discussed within the policy and developmental discourse across disciplines and fields such as development studies, political science and public administration (Borgatti & Foster, 2003; Freeman, 2002 Hwang & Moon, 2009). This section looks at the research collaboration landscape from both international and South African perspectives. Moreover, it describes

opportunities posed by research collaborations between government, academia and the private sector and what characterizes research collaborations. This section will also focus on strategies that can be employed to manage research collaborations and partnerships across sectors.

Research collaborations and partnerships are defined as “the working together of researchers to achieve a common goal of producing new scientific knowledge” (Katz and Martin, 1997). According to Katz and Martin (1997) and Cattaneo, Horta & Meoli (2019), research collaborations are complex, can take many forms and tend to be characterised by various levels of engagement among collaborators and partners. In recent years, research collaborations have involved not only academics but also practitioners in both government and the private sector. Hence, research collaboration has become extremely relevant in research practices and research uptake (Etzkowitz and Kemelgor 1998; Smeby and Try 2005; Brew, Bous, Namgung, Lucas, & Crawford, 2016). Furthermore, as alluded to in the preceding section, the ideology of R&D collaborations is not entirely new in network science in particular and with the research community in general (Cattaneo, Horta & Meoli, 2019). According to Cattaneo et al. (2019) and Powers and Campbell (2011), research collaborations can happen between academics and outside academia. Similarly, Cattaneo, et al (2019:2067) says that “research collaborations gained a new dimensionality after the mid-twentieth century as the focus of analyses of research collaborations considered not only collaboration between academic researchers in academic settings, but also, increasingly between academics and non-academics”. Notably, academic institutions have become part of the community through their involvement in community engagement initiatives; it is for this reason that they are gradually being viewed as social and economic change agents (Balduzzi & Rostan, 2016; Cattaneo et al, 2019). Moreover, there has been an increase in global trends of academic institutions getting involved in nation building programmes and initiatives by playing critical roles in the socio-economic development of nations, regions, cities and localities in collaboration with states (Brundenius, Lundvall, & Sutz 2009; Cattaneo et al, 2019).

Over the years there has been an attitude of “us” and “them” between academic institutions and non-academic institutions such as the government sector. On the one hand the non-academics believed that academics did not understand the practical side of things, including decision making processes in government, and were only viewing things from a theoretical and academic point of view; on the other hand, academics believed that the non-academics were performing

their work from an uninformed position and were not keen to use research evidence when taking decisions (Bogenschneider & Corbett, 2010; Cherney, Head, Boreham, Povey & Ferguson, 2012). However, things are beginning to shift towards a point of togetherness in addressing socio-economic challenges. Consequently, there has been a growing paradigm shift from individual sectors and organisations to more collective and intersectoral research endeavours (Senker, 2006). Research advances in certain fields and areas in both academia and government have evidently become relevant to other disciplines and fields, which therefore make it imminent for research collaborations and partnerships to occur (Senker, 2006). The researcher shares the sentiments of Etzkowitz and Leydesdorff (1997) and Senker (2006), who claim that there has been growing collaboration forged by academia, government and industry with the aim of stimulating socio-economic development to drive developmental agendas across the globe. These collaborations are seen as a new form of science in a network science space and are done purposefully to influence and inform policy and decision makers to channel resources towards socio-economic development and economic growth. Successful R&D collaborations and partnerships are characterised by trust, mutual benefits, skills and knowledge transfer, bridging gaps between different mindsets, common approach and priorities, and an understanding of each party's roles and aspirations and the purpose of collaborations (Senker, 2006; Hemmert, Bstieler, & Okamuro 2014; Cattaneo et al., 2019).

As advanced by Hwang and Moon (2009) and Zulu (2017), a research community should be anchored in its collaborative efforts, collaborative networks, inter-organisational networks and continuous striving for partnership creations with the aim of transforming society. The notion that collaborations should be beneficial to all involved parties cannot be emphasised enough, mainly because mutual beneficiation ties collaborators together. Different sectors ought to come together to forge collaborations and this should be done with an open approach; furthermore, the actors or collaborators should find common ground and have common goals. The collaboration and partnerships should be mutually beneficial in order to thrive and serve their purpose. Over the years such collaborations and partnerships have been seen in research, development and innovation, where different actors and stakeholders came together for a common purpose such as producing and disseminating knowledge and developing innovations for market, socio-economic development and economic growth (Fagerberg, 2013; Zulu, 2017). These partnerships and collaborations were anchored on studies such as innovation studies (Zulu, 2017). Similarly, scholars in network science have also documented the rapid increase in

research collaborations, research networks and research partnerships in recent years (Borgatti & Foster, 2003; Freeman, 2003; Hwang & Moon, 2009).

Research collaborations between governments, academia and the private sector have worked immensely well in countries across the globe. For instance, in the United Kingdom over 725 collaborations through public-private partnerships at a worth of 54.2 billion Euros have been developed to improve the lives of ordinary citizens by providing infrastructure such as hospitals, schools, roads and bridges (Mikhaylov, Esteve & Campion, 2018). These public goods are created through collaborative efforts and ultimately get translated into public service improvement. Some of the countries that have used knowledge creation and production through collaborative efforts to contribute to socio-economic development and innovative systems include Denmark, France, Germany, Italy, Spain and the United States. These countries have adopted the OECD definition of research as “original investigation undertaken to acquire new knowledge” (Senker, 2006:67). These countries have put pressure on collaborators to carry out research, development and innovation that contribute towards government priorities and meet the needs of the users and citizens by ensuring that research results are translated into policy and practice. Furthermore, funders of research promote collaboration and cooperation between sectors such as government, the private sector and academic institutions as well as partners across countries (Senker, 2006; Cruz-Castro & Sanz-Menendez, 2023).).

2.5.1. Inter-sectoral collaborations in South Africa

South Africa understands the significance of R&D in planning and development. The National Development Plan (NDP): Vision 2030 highlights that research, innovation and technology should be prioritised by “building a properly qualified, professional, competent and committed teaching, academic, research and public service core” and that by 2030, 75% of university academic staff should be PhD holders either as staff or as post-doctoral fellows (NDP, 2012). Simply put, the NDP emphasises that research should dominate the developmental agenda of the country through knowledge production, dissemination and its uptake. This context brings together the public sector/government, research institutions such as the National Research Foundation (NRF), the Council for Scientific and Industrial Research (CSIR), the Human Science Research Council (HSRC), the Agricultural Research Council (ARC) and the Medical Research Council (MRC) as well academia/universities. Additionally, these research institutions and universities have an important role to play as key stakeholders that have the capacity to

solve the developmental problems in the country using R&D. However, the commitment and will of the South African government to prioritise R&D funding through agencies such as the National Research Foundation (NRF), the Department of Science and Innovation and research councils such as HSRC, CSIR, NRF, ARC and MRC is critical if the country is to curb and eradicate the country's triple challenges as enshrined in the NDP and provincial strategic plans. Gyekye et al. (2012:) contend that "research and innovation has been acknowledged as critical factors for fueling long-term sustainable economic growth and, concomitantly, employment creation and poverty alleviation in developed and developing economies". This notion is supported by Thirtle et al. (1998); Gyekye et al. (2012) and Tsvakirai et al. (2018). Hence, R&D investment remain critical.

It should be noted that the South African government is a main funder of the science council and universities; however, these sectors also get funding from foreign entities and through publications. According to the White Paper on Science Technology and Innovation (2019), the science councils, the business sector and universities do engage in collaborative projects. Table 5 illustrates the research areas that the sectors collaborated on between 2010 and 2014.

Table 5: Research areas emphasised by various sectors 2010-2014

Universities	***Science Councils***	***Business Sector***
Chemistry	Science and Technology: other	Chemistry
Environmental Sciences: Ecology	Biochemistry Molecular Biology	Engineering
Engineering	Astronomy Astrophysics	Materials Science
Physics	Public Environmental Occupational Health	Energy Fuels
Science and Technology: other	Physics	Nuclear Science Technology
Mathematics	Environmental Sciences Ecology	Metallurgy, Metallurgical Engineering
Plant Sciences	Infectious Diseases	Parasitology

Public Environmental Occupational Health	Chemistry	Mining Mineral Processing
Infectious Diseases	Immunology	Veterinary Sciences

Source: National Science Technology and Innovation Information Portal (2015))

A very important responsibility of an academic institution is to produce, generate and disseminate knowledge through papers, articles, policy briefs, conference proceedings and using platforms such as seminars and more. The table below illustrates the inter-sectoral collaborations in South Africa as far as co-authorship is concerned. This table shows the total output of sectors dated from 2010 to 2014.

Table 6: Inter-Sectoral Co-Authorship Matrix 2010-2014

Sectors	***Universities***	***Science Councils***	***Business Sector***
Universities	45 386*	4 229	281
Science Councils	4 229	8 828*	34
Business Sector	281	34	455*

Source: National Science Technology and Innovation Information Portal (2015))

2.5.2. R&D Collaborations and Partnerships as a Prerequisite for Development

It should be noted that over the years there has been an ongoing academic conversation on research collaborations between academia and the public and private sectors as a pre-requisite for socio-economic development. Evidence from the literature reviewed in this chapter illustrates how major economies around the world have utilised research collaborations to contribute to their innovative economies (Mikhaylov, Esteve & Campion, 2018). Some of these growing economies have gone to the extent of using artificial intelligence to build innovative economies, improve public services and promote socio-economic development (Mazoni, 2018; Mikhaylov et al., 2018). Etzkowitz and Leydesdorff (1997) and Senker (2006) allude to the importance of academia and the public and private sectors forging partnerships that aim to stimulate the knowledge-based economic development. According to Senker (2006) and Kamata (2022), collaborations between the academia, industry and government have been created by academic entrepreneurialism, industry's need for external providers of knowledge and governmental policies to promote socio-economic development and transform the market economy.

Looking at developmental states such as Japan, China, South Korea, Taiwan, the United States and the United Kingdom, one would realise that governments have played a critical role in the advancement of capable states. Additionally, these governments have been catalytic in driving their developmental agenda by inducing entrepreneurship, transforming their investments and bolstering the competitiveness of their firms in global markets. All these catalytic factors were done by forging partnerships with external parties such as the private sector and the academic institutions (Ng, 2008; Kamata, 2022; Cruz-Castro & Sanz-Mendez, 2023). For instance, Singapore exercised extensive control over the market, providing it with all the necessary apparatus for it to thrive; the government provided land and invested greatly in human capital (i.e. human resource development), and also provided funding for research, development and innovation (Ng, 2008). This is a prime example of how intentional developing countries should be about socio-economic development.

2.5.2.1. Opportunities Posed by Research Collaborations and Partnerships

Expertise: when collaborating with academia and the private sector, the governmental sector will gain access to research facilities and knowledge networks from different disciplines and fields. Similarly, academia and the private sector will also have access to policy makers and decision makers in government and potentially access information relevant for research publication. (Cherney et al., 2012; Wooding, Nason, Klautzer, Rubin, Hanney & Grant, 2007).

Knowledge exchange: parties can share knowledge residing in their organisations. These collaborators will leverage their joint knowledge on broader research areas. With the vast knowledge and access to various network residing in government, academia and the private sector, these research collaborations have the potential to tackle existing developmental challenges such as poverty, inequality and unemployment.

Knowledge production: research collaborations can create platforms for impactful knowledge production and influence policy and practice, while simultaneously transferring existing knowledge and skills to each other.

Research uptake: research uptake has always been a challenge that most researchers encounter when disseminating knowledge to non-academic sectors (Cherney et al, 2012). Research collaboration may create a platform for the intended end-users of the produced knowledge to adapt the research outcomes. As the end-users (policy makers, decision makers,

and practitioners) are already interacting with the knowledge producers, who are academics, it becomes easier for them to engage in disseminating research and its uptake.

Access to private funding: the government sector and academia can forge partnerships and form research consortiums to assist the parties to access private funding and complement their existing research funds while simultaneously creating a knowledge base and employment opportunities for graduates and upcoming entrepreneurs. This should appeal to collaborators in the sense that they can collectively leverage funding from big donors.

Innovation creation and commercialisation: innovation systems thrive on research collaboration involving different institutions; thus, the research collaborations between government, academia and the private sector can yield positive results for innovation creation and commercialization that will not only create job opportunities that will translate to economic development and economic growth but will also enhance human capital development, which is extremely important in the pursuit of a developmental or capable state. Evidently, knowledge and technological innovation are becoming so widespread that developing technological innovation benefits from a well of knowledge integration and expertise from multiple sources (Melese, Lin, Chang & Cohen, 2009; Cassiolato et al., 2020)).

2.5.2.2. Challenges of Research Collaborations and Partnerships

Collaborations are generally dynamic and challenging in the sense that they involve more than one institution with different organisational cultures, objectives, missions and visions. Hence, institutional culture clashes are bound to happen. This may of course be challenging for the prospective research collaborators and partners. Some of the challenges are highlighted below:

Organisational culture difference: collaborations between partners from academic and non-academic sectors may involve differences in research orientations, which Cherney (2012) and Dunn (1980) regard as the ‘two communities’ metaphor, which emanates from different working cultures and environments. For instance, academics are more inclined towards methodical and systematics practices that focus on data quality and methods whereas practitioners in the government sectors focus on practice and are action oriented. Often an argument is advanced that academics do not comprehend the research needs of government and the academics hold the view that government does not prioritise research. This is the ‘two communities’ metaphor

that has been advanced over the years and if not properly addressed may hinder progress among collaborators.

Funding: Judging from its GERD, South Africa's funding for research is very low in comparison with other countries such as Brazil, China, Japan, South Korea, the United Kingdom and the United States (Department of Science and Innovation (DSI), 2021; Kahn, 2007). In fact, the R&D Survey Report recorded a decline of 0.08% from the 2017/18 financial year to the 2018/ 19 financial year (DSI, 2021). Conversely, the higher education sector and science councils seem to be growing, although the higher education sector in 2018/2019 financial year recorded a 0.01% decline to 0.27% compared to the growth recorded at 0.28 % in 2017/2018 and the science councils dropped from 0.14% in 2017/18 to 0.11% in 2018/19 (DSI, 2021). The reason for providing this picture is to illustrate that funding for R&D activities is very low in South Africa, which is a challenge most research collaborators deal with from time to time. Importantly, transformational policies to support the creation and production of knowledge and its uptake are necessary for planning and development.

Research uptake: as alluded to in the preceding section, this has always been a challenge for academics. It is attributed to policy makers and practitioners finding it difficult to implement research results and recommendations. This may arise from the challenges in interpreting and understanding research results and findings, and insufficient resources, such as human and financial resources, to translate research findings into practice and policy (Cherney et al., 2012).

2.6. THE EVOLUTION OF INNOVATION

According to Fagerberg (2013) and Zulu (2017), the concepts of science, technology and innovation were not associated with growth and development prior to the 1950s. However, Schumpeter became a game changer, interrogating the role of innovation in socio-economic development (Fagerberg, 2013; Zulu, 2017). According to Zulu (2017), Schumpeter identified three stages in the process of innovation, namely invention, innovation and diffusion. Invention was defined as the first demonstration of an idea, whereas innovation referred to the first commercial application of an invented product into the market space and diffusion as the spreading of the technology or process throughout the market (Zulu, 2017). Schumpeter's innovation theory was widely accepted (Śledzik, 2013; Zulu, 2017). Joseph Alois Schumpeter is considered the foremost theorist in economics and he participated in most important

economics debates in the 1980s, his greatest contributions being on issues around innovation and entrepreneurship (Śledzik, 2013; Zulu, 2017). Schumpeter describes development as a process of structural changes that are driven by innovation. Similarly, he emphasizes the significance of entrepreneurship and the role played by big firms in conducting extensive R&D and support technologies (Śledzik, 2013; Zulu, 2017)

In fact, the diffusion of innovation is supported by the diffusion of innovation theory (DOI), which was developed by EM Rogers in 1962. This theory explains how over time an innovation or an idea diffuses into a space and how long it takes for people to adopt and start using it (Rogers, 1962; Dearing & Cox, 2018). In essence Rogers illustrates how long it is likely to take for a newly developed idea or innovation to start being utilized by the intended end users (Rogers, 1962; Dearing & Cox, 2018). According to Dearing and Cox (2018:183), diffusion "is a social process that occurs among people in response to learning about an innovation such as a new evidence-based approach." The most critical aspect of this theory is on the 'adoption time' of the innovation or idea. Adoption in this case refers to the reception that the innovation or idea will get from the potential end-users as part of a social system. This adoption should result in end-users doing things differently to how they were used to doing things, implying that in order to achieve different results the end users will have to use a new and different approach.

In the 1970s, the evolution of innovation theory was dominated by three approaches, namely induced innovation, evolutionary approaches and path-dependent models (Greenacres, Gross & Spiers, 2012; Zulu, 2017). These three approaches have been viewed as complementary elements of general systems of the theory of innovation (Greenacres, Gross & Spiers, 2012; Zulu, 2017). The Organisation of Economic Cooperation and Development (OECD) developed an innovation system frame in the 1980s that positioned the firms or entrepreneurs at the core of the innovation systems as the drivers of an innovation economy. This was done through innovation research led by OECD (Zulu, 2017). This research became the genesis of the NSI systems in the 1980s onwards and has resulted in a wealth of literature on research, development and innovation (Greenacre, Gross &Spiers, 2012; Zulu, 2017).

2.6.1. The National System of Innovation (NSI)

The origin of the concept of national system of innovation is traced to the early 1980's, when it was introduced by Christopher Freeman in 1982 during the Organisation of Economic

Cooperation and Development (OECD) in discussions on how countries can develop their technological infrastructure (Freeman, 2002; Johnson, Edquist & Lundvall, 2003). However, Zulu (2017) attributes the origin of the concepts to the 1800s, where a contestation of ideas on the concept emerged between two scholars, Friedrich List and Adam Smith, who co-authored a book entitled “The National System of Political Economy”. In this book List advocates that the wealth of countries should be in the hands of market forces whereas Smith argues that an integrated approach should be devised where economic development and economic growth are concerned. He introduced the notion of an integration of institutions that are working on knowledge production, productive sectors, technology and infrastructure (List, 1841; Sizani, 2012). Today the conceptualisation of the NIS has evolved over time and has located itself within the current socio-economic development realm and its challenges across the globe. The NSI has found its expression in the literature and has been defined in different ways. It is defined in South Africa’s White Paper on Science and Technology (1996) as a set of functioning institutions, organisations and policies that interact constructively in the pursuit of a common set of social and economic goals and objectives (White Paper on Science and Technology, 1996: 19; White Paper on Science, Technology and Innovation, 201). In support of this definition, Manzini dissects the characteristics of the NSI and argues that the system is characterised by its ability to foster technological innovation and quality networks (Manzini, 2012). Mytelka (2003) defines NSI as ‘a network of economic agents, together with the institutions and policies that influence their innovative behaviour and performance’ whereas Niosi (2002) and Wangwe (2003) both define the concept as a set of interrelated institutions, the core being those that generate, diffuse and adapt new technological knowledge. These institutions may be firms, R&D institutes, universities or government agencies. Additionally, scholars such as Freeman (1987), Velia, et al. (2020) and Cassiolato, et al. (2020) view the NSI as a 'network of institutions in the public- and private-sectors whose activities and interactions initiate, import, modify and diffuse new technologies’ and Lundvall (1992) suggests that NSI is about “elements and relationships that interact in the production, diffusion and use of new, and economically useful knowledge.” Metcalfe (1996) defines NSI as “a system of interconnected institutions to create, store and transfer the knowledge, skills and artifacts which define new technologies.”

All these definitions emphasise the need for interaction, integration and synergy among different sectors in order for the system to be meaningful. What needs to be emphasised in this current knowledge economy is that NSI systems should not exist for their own sake, but instead should

exist to make a meaningful contribution in the lives of the people. After all, it would be pointless for the NIS to exist and be deemed useful if it cannot live up to its obligation to transform society. The NSI's existence ought to provide a basis for a vibrant and robust technology-innovation driven development or economy. Moreover, the NSI ought to ignite conversations in science, technology and innovation and contribute to the innovation policy discourse through science, technology and innovation policies and plans (Manzini, 2012). In essence, the NSI is aims at knowledge and technology generation and transfer, which eventually builds the wealth of a country and improves the quality of life of the people. More importantly, the NSI requires that governments develop their technological infrastructure for their economies to thrive (Zulu, 2017). Therefore, governments should create a conducive environment for research, development and innovation to thrive. Freeman and Perez (cited in Zulu, 2017: 19) have suggested that governments across the globe should take the following into account:

(i) Provide direction and support for the development and marketing of advanced technologies;

(ii) Provide an integrated approach to R&D, design, procurement, production and marketing within large firms; and

(iii) Provide a high level of education and scientific culture, combined with practical training and a frequent feedback loop.

In retrospect, the South African apartheid government developed an NSI that consisted of the private sector, state owned enterprises, research councils and higher education institutions (Kahn, Blankley, Maharajh, Rogue, Reddy,Cele &du Toit, 2004; Kahn, 2007). According to Kahn (2007) and Kahn et al. (2004), the existence of the NSI was supported by soft and hard infrastructure, a legal and regulatory framework and standards environment and intellectual property rights (IP). Moreover, government was a key role-player and supporter of this initiative as a funder, user and performer of research, development and innovation (R, D&I). Kahn (2007) argues that the important element in the NSI's existence was the involvement and will of government to promote and advocate R&D as a central part of their planning and development. More importantly, the NIS is the collaboration and partnerships that were forged between the private and public sectors through the research councils and higher education institutions. According to Kahn (2007), the science/research councils were the main research performers in government and they aligned their strategic plans and directions with those of their respective

line departments and performed according to such strategic directions. The government not only provided financial assistance but also created an environment for the councils to interact and forge partnerships with the market to generate income through contractual research work and commissioned research.

2.6.2. The NSI in developing countries VS NSI in developed countries

The literature in the preceding section has illustrated that NSI is underpinned by pillars and functions that are geared towards economy building. These pillars are found in private and public institutions, the commonality in these institutions, whether big or small, being founded on socio-economic development motives (Manzini, 2012).

2.6.2.1. The NSI in Developed Countries

An American economist, Moses Abramovitz, conducted a study in the United States of America's economy productivity, revealing that their economy's productivity and growth was attributed to the use of technologies (Rosenberg, 2004; Freeman, 2002; Zulu; 2017). Christopher Freeman developed an interest in innovation issues and in 1966 he established a centre in the University of Sussex called the Science Policy Research Unit (SPRU), which focused on the role of innovation in the policy, economics and social science space (Zulu, 2017). This center inspired and attracted other scholars in Europe and Asia in the 1980s and this eventually influenced the NSI concept in developing countries (Fagerberg, 2013; Zulu, 2017).

Approaches to the National Systems of Innovation

The approaches to the NIS are as follows: technology innovation systems (TIS), technology transitions, multi-level perspectives, transitions management and socio-technical framework (Greenacre, Gross & Spiers, 2012; Zulu, 2017).

Technology Innovation System (TIS)

This approach is aimed at analysing and evaluating developments in specific innovation, technological and R&D areas. This is basically a starting point where structures and processes are assessed to ensure that they support that specific area of technology, innovation or R&D (Zulu, 2017). This approach brings together different actors and stakeholders from different sectors and regions as well as from some national interactions in a less complex manner than

other approaches (Greenacre, Gross & Spiers, 2012; Zulu, 2017). According to Zulu (2017), the TIS approach consists of the following elements:

(i). Actors such as firms, users, suppliers, investors and organisations;

(ii). Research, development and innovation networks with an aim of knowledge transfer; and

(iii). Institutions and entities to shape the environment within which all the identified actors operate.

Transitions Theory

This approach focuses on processes that involve a technological shift or change. Importantly, it looks at the changes in products and processes relating to innovation or technology (Zulu, 2017). This theory acknowledges that transition or change in technology is multi-faceted and it includes economics, sociology, history and engineering (Greenacre, Gross & Spiers, 2012; Zulu, 2017). The R&D model that this study has produced would require that governments prepare themselves to adapt to the transitioning processby responding to the recommendations made by the model. Hence, planners and policymakers in the public administration and their counterparts in academia, the private sector and civil society need to collaborate in implementing recommendations of the study in order for R&D intiatives to be impactful.

The Multi-Level Perspective

This approach is linked to the preceding theory of transition in that it also emphasises the significance of understanding that innovation requires change created in multiple processes and it is therefore dependent on them (Zulu, 2017). Such processes include changes in practices, regulations, industrial networks and culture (Greenacre et al., 2012; Zulu, 2017). This innovation or technological transition occurs when there is an interaction between the macro-level, which is a landscape and socio-technical regime, and the micro level, which is a technological niche area (Greenacre et al., 2012; Zulu, 2012). At the technological niche level or micro-level a technology or innovation is created and takes shape; at the meso-level or socio-technical regime level, interactions and engagement between key actors and organisations take place and technology or innovation is re-enforced; and the macro-level involves the production of technological trajectories, which represents broader political, social, and cultural values in societal trends (Greenacre et al., 2012; Zulu, 2017).

Transitions Management

This approach involves government as the key stakeholder in the NSI concept in the sense that government has to promote and protect the newly developed innovation or technology and also provide support to its innovators, developers and researchers (Greenacre, et al., 2012; Zulu, 2017). This approach promotes institutional interaction and engagement, provides leadership on the governance side of things and ensures that change takes place.

Socio-technical Framework

According to Zulu (2017), part of the research process as far as innovation is concerned is to develop a socio-technical framework to usher in the new transition in terms of "developing technologies, exploring potential link actors" and analysing the effects of these links on the developed technologies. The framework highlights two key functions that are important for the framework to work: "Characterise the key elements of existing regimes within the innovation system (actors, socio-technical regimes and landscape); identify key processes that influence the development of innovations at the micro (niche) level and specify system interaction" (Zulu, 2017:25).

These approaches are interlinked in creating an enabling environment that brings together different actors in technology and innovation to ensure that the technological changes and shifts are well understood by critical actors especially because most innovations are multifaceted. Additionally, these approaches influence changes in research, development and innovation in various government processes, systems and regulations. . Ideally, governments should formulate policies and regulations to protect R&D responsible for technological innovation in the transitioning process.

2.6.2.2. The NSI in Developing Countries

Manzini (2012) notes that NSI in developing countries is usually constituted by small scale enterprises, which fall within informal sectors. He argues that the contribution of such small-scale enterprises to the national innovation are not always fully accounted for. On the other hand, institutions associated with the NSI tend to operate on a bigger scale and at a higher level and their performance areas differ as well. Some of the institutions' work is on knowledge production through basic and applied research and they disseminate such knowledge using different platforms. These institutions are usually universities and research councils, whereas

other institutions are involved with technological development and innovation on a different scale on both a small scale and larger scale (Manzini, 2012; Zulu, 2017). The institutions that operate on a small scale are commonly community based. They strive to get their products to be commercially viable and usually rely on institutions such as research councils, government departments and universities to expose their products to a larger market.

It becomes crucial that when the NSI of developing countries is interrogated, three actions must take priority; firstly, organize NSI on three levels i.e. the micro, meso and macro levels; secondly, generate indicators to measure the performance of such NSI, and lastly, analyse the trends of the generated indicators (Zulu, 2017; Cassiolato, et al., 2020; Velia, et al., 2020). Zulu (2017) further explains the hierarchical levels of the NSI in line with the study of the Zambian NSI, where the three levels were clearly articulated. These levels can be applied in other developing countries such as South Africa. The micro level refers to knowledge development, the meso level to business, industrial and entrepreneur activities, of which some may be found at community level, and the macro level to resource mobilisation. Innovation and knowledge production are vital for the economic development of a country, especially a developing country. In the study conducted by Zulu in 2017, where a Zambian NSI system was interrogated, it was found that science, technology and innovation (STI) policies are vital for the NSI development of a country and for "fostering closer links between the Research and Development community" (Zulu, 2017:06). Additionally, the American economist Moses Abramovitz revealed that developing countries require legal, political and cultural institutions and technological advancement in order to develop (Coriat & Weinstein, 2000; Cassiolato, et al., 2020; Velia, et al., 2020).

The significance of the NSI approach in developing countries is centred on its contribution to policy making (Dantas, 2005; Zulu, 2017). Additionally, the NSI approach tends to promote networks between organisations by acknowledging that science and technology (S&T) institutions or organisations are influenced by each other's practices and S&T inputs, outputs and innovation processes and outcomes (Dantas, 2005; Watkins, Papaioannou, Mugwagwa & Kale 2015; Zulu, 2017). Furthermore, the NSI approach has become very popular in developing countries due to the role it has been playing in maintaining and improving socio-economic development and economic growth in developed countries (Dantas, 2005; Watkins et al., 2015; Zulu, 2017). Thus, over the years the concept of NSI has become popular in developing

countries such as South Africa, Brazil, China and India. These conversations are seen as a way of channeling these countries towards competitiveness and growth (Dantas, 2005; Watkins et al., 2015; Zulu, 2017). Hence, policy makers need to be at the centre of these conversations and champion these innovation networks by and forging collaborations in the public sector, private sector, business sector and academia (Feinson, 2003; Zulu, 2017; Kamata, 2022).

2.7. TRIPLE HELIX MODEL

The triple helix model is centred on the knowledge-based economy. The main role-players in the knowledge based economy are essentially universities, business/private sector and government, mainly because they are regarded as carriers of innovation systems (Etzkowitz & Leydesdorff, 1995; Leydesdorff &Zawdie, 2010). The triple helix is mainly about the relations of University–Industry–Government Relations (Leydesdorff, 2018). Additionally, many countries across the globe such as Russia have considered the triple helix model as one of the most successful and effective models in the innovation space (Kalenov & Shavina, 2018). The model was introduced by Professors H Etzkowitz and L Leydesdorff in the beginning of the 21st century as one of the most important innovative models that are centred on government, business and university's interactions. The model is illustrative of how institutions are outcomes of production, which involves stage by stage of innovation creation and production and how the innovation is translated into practice or enters the market space (Kalenov & Shavina, 2018). The most important thing about the triple helix model is that it does not get applied only at the national level but can be extrapolated to the regional and local levels as well.

According to Cai and Etzkowitz (2020) the triple helix model places universities' role at the centre of the transition towards a knowledge-based society and economy. Projects and programmes often assume the posture of adopting the triple helix model without being aware of it. Although it has existed for some time, there are still researchers and practitioners who have not yet managed to take into account and understand its strengths and weaknesses (Etzkowitz, 2008; Cai & Etzkowitz, 2020). Essentially, the model is used to foster relationships between government, business and universities. These interactions are significant in the sense that each sphere or party takes up their respective role and works towards a bigger picture of achieving research, development and innovation.

This model has been criticized for lacking a theoretical framework and foundation (Cooke, Gomez & Etxebarria, 1997; Cooke, 1996; Shinn, 2002; Viale & Pozzali, 2010; Cai & Etzkowitz, 2020). Contrary to this, other scholars have acknowledged that the model "represents a critical and sometimes stringent base for further theoretical sociological reflection on innovation dynamics" (Marcovich & Shinn, 2011: 176). Furthermore, the triple helix was chiefly founded on the basis of other successful practices across regions in the past (Cia & Etzkowitz, 2020). Over the years, the triple helix model has been viewed as a critical model that advocates and promote innovation and it is therefore used to analyse innovation policies of various countries and provide policy recommendations (Cia & Etzkowitz, 2020). The model has been promoted by international organisations such as the World Bank, the European Union and the OECD.

The triple helix model is in tune with the concept of national innovation systems because they both emphasise the need for countries to adopt a knowledge-based economy in order to grow and develop their economies and transition the society. According to Aghion, Davids and Foray (2009) and Leydesdorff (2018) the knowledge-based economy is greatly elaborated in the NSI as an evolutionary perspective and the triple helix (TH) is emphasized as an institutional elaboration. The interconnectedness of universities, business/industry and government through the TH can be fundamental in an environment that is intentional about changing the R&D landscape of the country and consequently use R&D to inform and support government's developmental projects and programmes. According to Leydesdorff (2005), the nexus between these three institutions is such that each institution has a role to play; for instance, the universities are in a position to use its national and international ties to market the work being done and influence more impactful partnerships; the governments have an upper hand in influencing policies and ensuring that business/industry makes informed trade-offs for investments on R&D and science and technology.

2.8. THE NEXUS BETWEEN R&D AND PUBLIC ADMINISTRATION

The definition of public administration as a practice and Public Administration as a discipline has been debated for decades. Scholars have long had different perspectives towards this particular science; according to Aderibigibe et al. (2014: 65) public administration as a practice is "the implementation of government policy" and as a discipline Public Administration is an "academic discipline that studies this implementation and prepares civil servants for this work". In essence, public administration involves the translation of public policy into reality through managing

different projects and programs within the public sector (Aderibigibe et al., 2014). Aderibigibe & Olla (2014)'s definition accords with notions expressed by Hodgson (1969) who emphasise that public administration as a practice comprises all the necessary operations that are purposefully geared to fulfilling the purpose of government and its agencies, which is primarily to deliver goods and services through the implementation of public policy. Although Donald (2010) and Kenneth (2010) hold a strong view that generally there is really no accepted definition of the concept "public administration". These aforementioned scholars are driving a point that the scope of public administration is great and highly debatable that it becomes easier to explain rather than to define it. Aderibigibe et al. (2014) explains the frustrations that come with attempting to define the concept at hand. Furthermore, Aderibigibe et al. (2014) explains that public administration is both a field of study i.e. a discipline and an occupation or a profession. Disagreements to properly locate this discipline remains debatable as some scholars place public administration as a sub-field of political science and some place it as a subfield of administrative and management science (Donald, 2010; Kenneth, 2010 & Aderibigibe et al., 2014). Cloete (1992) explains that public administration encompasses activities, processes, and functions to ensure that public institutions deliver public goods and services. Furthermore, Cloete (1992) argues that public administration is a distinctive field of work performed subject to normative rules that demonstrate its distinctiveness. Additionally, public administration can be viewed as, firstly, an integral view and part of government's comprehensive activities in their day to day functioning and implementation of public policy as public institutions and secondly as a "managerial view which appears narrower and possibly manageable" (Marume, 2016:19). Maserumule (2008) alludes to a concept of administrative ipsedixitism and connects it to the public administrators/practitioners being prescriptive of the type of research agenda that academics should pursue without taking into consideration how the results of the unprescribed research agenda will be impactful, purposeful and useful to the developmental agenda of the country and the desire to become a developmental state. This level of prescription is often influenced by the notion by public administrators that academics are "too theoretical and abstract" and practical (Kuye, 2005: 527; Maserumule, 2008). However, even with these differences between academic and public administrators, collaborations are still important, mainly because of the interconnectedness between R&D and public administration. Academics and practitioners should continue to interact, engage and even collaborate as this is important

for continuous information sharing and dissemination as well as for collectively developing solutions to existing societal challenges (Maserumule, 2008).

2.9. R&D AND PUBLIC ADMINISTRATION IN SOUTH AFRICA

The evolution of the public sector and public administration as a practice in South Africa has been observed over the years. In her paper, Yvonne Muthien, the former Public Service Commissioner during President Mandela's tenure, explains that the public sector has evolved since the apartheid government pre-1994 and has continuously moved to a post-apartheid discourse mirrored by the democratization and transformation of state machinery from 1994 to 2004, then moving towards a paradigm shift of building a capable or developmental state from 2005. Currently, South Africa has not realised a model that is workable for proper planning and development. Scholars have therefore observed that South Africa's public sector needs a coherent public sector reform model, which at present seems to be lacking (Chipkin & Lipietz, 2012; Muthien, 2013).

The consensus in the academic realm is that research, development and innovation systems have interactions and links in shaping and improving how the government performs its duties of rendering public goods and services in an effective and efficient manner as well as shaping the socio-economic development landscape across the globe (Lundvall, 1992; Nadiri, 1993; Freeman, 2002; Lundvall, 2002; Lundvall, 2007; Patra, 2017; Tsvakirai, et al., 2018). Currently the most important resource for planning and development is knowledge and technological generation, production, dissemination and utilisation (Lundvall, 1992; Nadiri, 1993; Freeman, 2002; Lundvall, 2002; Lundvall, 2007; Patra, 2017; Tsvakirai, et.al., 2018). Furthermore, Lundvall (1992) and Lundvall (2007) argue that the long-term effort to promote socio-economic development is dependent on building research, development and innovation systems while simultaneously providing basic living conditions for the people.

Like most other African states, South Africa is lagging when it comes to enhancing its R&D investment and funding systems; moreover, South Africa is not doing well in making R&D a key component for socio-economic development (Kahn, 2007). South Africa has long struggled to provide public goods and services effectively and efficiently, to achieve socio-economic development and to grow its economy. These deficiencies are owing to its inability to strengthen its research, development and innovation space (Adams et al., 2001; Stratmann, 2005; Fourie,

2007; Gyekye et.al, 2012; Velia, et al., 2020). It is critically important for the South African government to enhance the involvement of all key actors in the system of research, development and innovation with the aim of improving government's performance in providing public goods and services (Kahn, 2007). For example, South Africa can utilize R, D & I to increase productivity in delivering key services such as education and health.

As alluded to in the preceding section, the National Development Plan (NDP) Vision 2030 has highlighted that South Africa planned to invest 1.5% of GDP in R&D. This target was set to be achieved by 2019; however, it was not achieved (see Table1) (CeSTII, 2021; Mustapha et al., 2015; NPC, 2012). According to Mustapha et al. (2015), had this target been achieved, South Africa's R&D intensity would have been placed in line with the average OECD's R&D expenditure, which was 2.34% in 2010. Basically, R&D expenditure remains sluggish in South Africa, particularly in the public sector, and this trend affects the public sector's performance (CeSTII, 2021). The South African Constitution prioritises the right to access basic services such as education, health and shelter as this promotes human dignity (NPC, 2011; The Presidency, 2014). According to the South African Government's Twenty Year Review (1994-2014), strides in public goods and service delivery have been made since the advent of democracy; however, there are still some inconsistencies, challenges and unevenness in service delivery. There have been success stories too, such as the expansion in access to primary and secondary education, primary health care, water, shelter and electricity. There have also been failures along the way, however, such as poor quality of services provided by government in the access to education, health care, shelter, and water and electricity. It is important to identify some of the service delivery challenges of the government in order for it to do better and reform the public sector with the aim of improving its performance going forward. During the transformation era, when South Africa was ushering in the new democratic dispensation and abandoning the apartheid system, a stance was taken to create an environment that would be conducive for the changes brought about by democracy. The Mount Grace conferences were part of the environment created to prepare for the new democratic South Africa and to accelerate service delivery (Cameron and Milne, 2009). It was at these conferences that debates surrounding the shaping of South Africa took place. The Mount Grace 1 conference conceived a New Public Administration Initiative (NPAI) that comprised universities, technikons, NGOs, practitioners from government and public servants (McLennan, 2007; Cloete, 2008; Cameron and Milne, 2009).The main aim of the NPAI was to recreate, re-energise, unify and transform public

administration and the manner in which services should be delivered to the people in an equal manner regardless of their race, political affiliation or gender (Cameron and Milne, 2009). The second Mount Grace conference revisited the Mount Conference 1 decisions and evaluated the extent of progress made and how the decisions contributed to the democratic dispensation and the policy making landscape at that time (Theron and Schwella, 2000; Cameron and Milne, 2009). The gap that was observed from the first conference is that it lacked a research focus and that research did not receive sufficient attention, particularly in the field of public administration, development studies and policy studies (Cameron and Milne, 2009). This gap continues to haunt South Africa because to date most research conducted in the public sector has not been very impactful and purposeful, especially where planning and development and improved service delivery are concerned.

The Twenty Year Review: South Africa, 1994-2014 by The Presidency has highlighted some of the challenges in the public sector that affect its mandate to deliver quality services in an effective and efficient manner, including the following:

Human resources

The report has indicated that inadequately skilled and inexperienced civil servants in the public service administration has resulted in the state's failure to deliver quality services as mandated. The deficit in relevant skills in areas such as infrastructure planning, health, engineering, finance and information technology has marred the public service and renders the planning and development process a futile exercise.

Uneven public service performance

South Africa has been plagued by unevenness in the delivery of basic services such as education, health, water, electricity, shelter, social security, especially in rural provinces. The quality of some of these basic services remains relatively poor and has resulted in service delivery protests in most parts of the country that indicate that the citizens are not satisfied with the public sector's performance in providing services.

Corruption and maladministration

Financial mismanagement and corruption have also been highlighted as a challenge faced by the South African government and have been associated with the failure for government to provide quality services. Also, the scourge and prevalence of corruption has made it difficult for the public service to perform its mandate properly. Corruption practices such as in the allocation

of contracts, rewarding of tenders and misuse of public resources has eroded the trust citizens have in the government.

Policy implementation

Government has policy documents and strategic plans to guide how services ought to be rendered. The implementation of such policies appears to be a challenge for the public sector, however, which affects service delivery. Also, policy coherence is a challenge as critical dimensions of governance are not properly integrated and coordinated (Thornhill & Cloete, 2014).

With all these challenges faced by the South Africa public sector, the vehicle for improvement lies in embracing R, D& I. Importantly, for a public sector to plan properly there are vehicles that should be driving the process, among them research, development and innovation (R,D&I) (Fourie, 2007; Gyekye et.al, 2012; OECD, 2008; Slavin, 2008). R, D&I has the potential to drive public sector reform to assist policy makers to make informed decisions. For instance, research can provide the basis for policy decisions on basic service delivery issues in the education sector such as:

- The adoption of policy approaches such as the relevant curriculum to be implemented in line with the country's context and complexities. For example, the outcomes-based education system that was adopted years back was criticized for not having taken into consideration the country's educational environment and its context; hence it did not yield the expected results (The Presidency, 2014).
- Setting up targets for national and provincial matric pass rates: a decision of this nature needs empirical evidence to guide government on a baseline for setting targets, how those targets can be achieved and what strategies to employ in order to achieve them. This also applies to other developmental areas such as decisions on the provision of public services such as water services, electricity, and shelter. Thumb-sucking when making decisions will only result in providing services that are not needed, or poor quality services or services that are inefficient and ineffective.

2.10. SUMMARY OF THE CHAPTER

The literature reviewed for this chapter has illustrated convincingly that R&D is pivotal for any development to thrive. In an era where the knowledge economy is critical for countries to develop, R&D has been put at the centre. Furthermore, R&D has played a significant role in the

growth of most big economies in Europe and Asian countries such as China and Japan. However, as the literature has illustrated, developing countries such as South Africa have been lagging behind on R&D investment and funding. Although lip service is paid to R&D, the reality is that expenditure on it in South Africa has continued to decline over the years. The next chapter focuses on the the interconnectedness between planning and development in the context of South Africa's Public Admninistration.

CHAPTER3: PLANNING AND DEVELOPMENT IN SOUTH AFRICA'S PUBLIC ADMINISTRATION

3.1. INTRODUCTION

The interconnectedness between planning and development and public administration has been cited by many scholars as an integral part of governments or states across the globe (Kuye, 2007; Kuye, 2018). The rationale for this nexus is linked to governments' mandate to provide goods and basic services to its people as part of its existence in the first place (Akhaphe, 2014; Igbokwe-Ibeto, 2019a).

It is against this background that this chapter provides an overview of public service delivery planning and development within public administration; the role of government in delivering public goods and services within the spectrum of planning and development; the role of R&D in planning and development; important theories and approaches in planning and development; and important theories and approaches in public administration.

3.2. PLANNING AND DEVELOPMENT IN THE PUBLIC ADMINISTRATION

In the search for excellence, public administrations across the globe and in Africa particularly must address their performance issues on how public goods and service are delivered to the citizens as well as how governments play their roles and carry out their mandates (Kuye, 2007; Kuye, 2018). Importantly, public administration's existence is centred on ensuring that governments achieve their goals. It is therefore important that governments should be kept in check and be reminded of the reason for their existence, which is associated with key issues such as planning and development, delivery of public goods and services, building human capital, ensuring better welfare of the citizenry and generally improving the lives of its populace (Akhakpe 2014; Dibie 2014; Igbokwe-Ibeto 2019; Igbokwe-Ibeto, 2019b). Moreover, public administration is an important field because it forms the basis for government's planning and development, and it is instrumental in implementing laws and public policies. In essence, public administration gives legitimacy to governments in power (Igbokwe-Ibeto, 2019a). If public administration is the basis for a government's existence, it is also important to highlight the significance of adopting planning and development processes in government. Generally,

planning and development in the public administration realm rely significantly on theory to improve and influence practice in the public sector (Kuye, 2018). Thus, continuous purposeful and meaningful research remains important within public administration to improve planning and development processes and to implement programmes and projects. This purposeful research should be prescriptive and relevant for decision making and public policy development (Kuye, 2018).

3.2.1. Public Service Delivery Planning and Development within Public Administration

Planning for service delivery and physical infrastructural development and planning requires a strong balance of technical planning and process centred planning (Dale, 2004; Theron, 2007; Tsheola, 2012; Tsheola and Mokgokong, 2012).Process centred planning should involve a good plan that is founded on scientific evidence. Planning tools in the form of strategic plans such as integrated development plans (IDPs) in the local government, annual performance plans (APPs) at provincial and national level, macro policies such as the National Development Plan (NDP) at a national level and strategic provincial plans at the provincial level should be based on empirical evidence and match the realities at grassroots level. A successful planning tool should integrate the realities in the communities, which can only be done through empirical evidence. Hence, evidence-based planning and decision making is critical in the pursuit of the fight against the triple challenges as enshrined in the NDP, namely poverty, inequality and unemployment (NDP, 2012).

The former President of the Republic of South Africa, Jacob Zuma, in his mission to develop a macro-economic policy for the country, appointed the National Planning Commission (NPC), which comprised 26 people. The aim of the NPC was to drive the development of the National Development Plan: Vision 2030. (NDP, 2012). The NPC conducted an enquiry that conceived the 2011 Diagnostic Report, in which achievements and challenges of government from 1994 were cited. Primarily the Diagnostic Report highlighted that some of the failures of government were linked to its failure to implement policies and poor partnerships with key stakeholders and sectors. These failures had resulted in challenges such as public service being uneven and often of poor quality, corruption, poor infrastructure, and an unsustainable economy (NDP, 2012). From the diagnostic report the NPC derived the NDP through a consultative process that included engagements with the public, government departments and entities, the judiciary, parliament, development finance institutions and the unions/civil society (NDP, 2012).

The NDP is not a government's plan but a country's plan, which implies that all stakeholders and sectors within the country should channel their energies and resources towards the realization of the targets set out in the plan. The plan therefore also guides how all spheres of government plan for development. Hence, all provinces are expected to develop provincial plans and position the NDP within their respective province; similarly, the local government should do the same when developing the IDPs. According to the NDP (2012) the NPC has focused on the following areas to ensure that the plan is well implemented:

- Mobilising society to support the plan and devise a social compact to address poverty and inequality;
- Conducting research on critical issues affecting the long-term development;
- Advising government and social partners on implementing the plan;
- Working with relevant state agencies to report on the progress on NDP objectives.

Approaches to Public Service Delivery Planning

The approaches mentioned below are linked to technical planning and process centred planning.

Regulatory planning approach: According to Tsheola (2012), this approach is inclined towards delivering pure private market goods. Moreover, it seeks to channel and allocate resources within communities and between citizenries.

Advocacy planning approach: This approach is geared towards providing public goods and services to the citizenry (Dale, 2004; Tsheola, 2012). Through this approach resources are able to be directed to new or neglected and impoverished areas in order to redress existing challenges in those particular areas.

3.2.2. The Role of Government in Delivering Public Goods and Services within the Spectrum of Planning and Development

The Constitution of the Republic of South Africa (RSA) (1996) prescribes the structures of government as entailing three spheres of government, namely: national, provincial and local governments (Jordaan & Jordaan, 2005; Landsberg & Graham; 2017; RSA, 1996). Furthermore, the Constitution decrees that these spheres of government are autonomous by their nature and origin (Jordaan & Jordaan, 2005; Landsberg & Graham; 2017; RSA, 1996). Maserumule (2017) argues that the link between these three spheres of government is centred on cooperative

governance, thus they should work collectively towards promoting the welfare of the people of South Africa. This supports the argument that the moral worth of any government lies in how it treats its people, inter alia the needy, children, the disabled, the sick, the elderly and the poor; this is what gives government the basis for its existence (Madonsela, 2010). First and foremost, government is supposed to pursue the aim, mandate and objectives of its political authority as it is bound by the specific rules of such a political authority or organization (Inman, 1987; Jordaan & Jordaan, 2005). Generally, the role of government is to address public demands and deliver public goods and services, and this can be done through public administration, which is defined as the "means to operationalise government within a state" (Maserumule, 2017, in Landsberg & Graham; 2017, Eds.). Indeed, to operationalise government requires administration, which basically means managing public affairs (Maserumule, 2017, in Landsberg & Graham; 2017, Eds). Wilson (1887:198) submits that "Administration is the most obvious part of government; it is government in action; it is the executive, the operative, the most visible side of government.". In certain contexts, administration would include government, legislature, executive, judiciary, state owned enterprises (SOEs) in its entirety (Maserumule, 2017; Landsberg & Graham; 2017, Eds.).

The Constitution of RSA states that government must provide public goods and services in a manner that is impartial, fair, equitable and unbiased (RSA 1996; Mfene, 2009). The delivery of public goods and service is dependent on the effectiveness and efficiency of the public administration in living up to its mandate of improving the lives of the citizenry by promoting their general welfare. Venter, Van der Waldt, Phutiage, Khalo, Van Niekerk and Nealer (2007) argue that the provision of services by government to citizens should be inclusive of both tangible and intangible goods and services. Such tangible services include housing, water and sanitation, electricity, health services, education; the intangible services refer to public safety standards, drainage systems and sewage systems, among others (Reddy, 2016). It should be emphasised that every government's ability to execute its responsibility to deliver public goods and service is dependent on its systems, structures, processes and policy formulation and management, policy implementation, available resources (i.e. personnel and finances) and political will (Botes, 1994; Mfene, 2009). Section 195 (1) of the Constitution of South Africa highlights key principles that should be considered by government in executing its mandate to provide services to its communities. The key principles of government lie in promoting and maintaining a high standard of professional ethics and promoting an efficient, economical and effective use of resources.

Additionally, the public administration ought to be developmentally oriented and provide services impartially. The government must deliver on its constitutional obligation by ensuring that people's needs are responded to and by encouraging the people to participate in policy processes. Furthermore, the constitution stipulates that the public administration is accountable to the people and should therefore be transparent and provide the citizenry with timely, accessible and accurate information.

Although there are pockets of excellence in government's performance over the years and in its provision of services, there are also challenges that were revealed in the Twenty Year Review: South Africa 1994-2014. Moreover, in contrast to the principles enshrined in the Constitution, the South African government's performance has been marred by ineffectiveness and inefficiency in the delivery of public services; where services are delivered it is often found that they are not of good quality (McLennan, 2007; Mfene, 2009). Hence the 20-year review report (2014) by The Presidency has unearthed that there is an uneven performance by government in the national, provincial and local spheres. The conclusions reached in the 20-year report are supported by Davids, Theron and Maphunye (2005) who concur that service delivery in the national, provincial and local spheres is not effective and efficient and is often misdirected. This can be attributed to inadequate skills, poor interpretation of policies, poor policy coordination, inadequate interpretation of research recommendations, inadequate dissemination of information, a lack of research that can be translated into policy and practice, a lack of financial and human resources and a lack of political will, among other failings. In order for government to improve its ways of providing services there is a need for a paradigm shift. The government must be in a position to implement its strategies. This means employing capable and skilled officials. Part of implementing its strategies includes improving its organizational structures, processes and systems and using research to inform decisions, planning and policy making processes. Adopting an evidence based planning and policy places the research uptake at the centre of influencing practice. Also, in this technological age, governments should use technological advances to render certain services, thereby illustrating that the public sector supports innovation. Moreover, governments should fund projects and programmes and support the commercialization of innovative products as this will promote local economies.

Post the apartheid regime South Africa was faced with major developmental challenges and disparities that included the uneven distribution of wealth, a lack of resources, underdeveloped

infrastructures, poverty, inequality, unemployment, low education levels and gender disparities (Holtzhausen, 2017 in Landsberg & Graham; 2017,). It was therefore deemed necessary to have three spheres of government with autonomous functions that were interdependent and interlocked to perform their different roles and functions (Holtzhausen, 2017 in Landsberg & Graham; 2017,). The national government was to play a significant role in promoting the general welfare of the citizens. Additionally, the provincial government would be instrumental in implementing macro-economic policies and decisions of both parliament and legislatures. Over the years, this middle sphere of government has been responsible for implementing national policies such as the Reconstruction and Development Plan (RDP), Growth, Employment and Redistribution (GEAR), the Accelerated and Shared Growth Initiative for South Africa (ASGISA) and the National Development Plan (NDP). However, the provincial government is also tasked to carry out provincial policies and mandates as approved by provincial legislatures, which could refer to strategic plans and policies. Thornhill and Cloete (2014) and Holtzhausen (2017) have insisted that provinces should play a pivotal role in running the affairs of government, chiefly due to their constitutional mandate to promote cooperative governance and influence policy-making processes. Holtzhausen (2017), in the book chapter titled “provincial government in South Africa” in Landsberg & Graham; (2017) mentions that provincial government’s role includes playing a strategic role of developing frameworks and strategic plans such as the PGDS and also play an oversight role to municipalities to ensure they prioritise the needs of the communities by implementating projects and programmes aligned to the PGDS and the Integrated Development Plan (IDP) and ensuring that they are effective in their operations. Additionally, provincial governments are expected to play an intergovernmental role by establishing processes and platforms that intergrate other spheres of government and government entities.

The third sphere of government, known as local government, is usually referred to as government that is closest to the people (Mle & Maclean, 2011). Orewa (1991) and Van der Walt (2017) have defined local government as a formal structure of governance at the local level. Furthermore, local government usually has a specified territory, population, institutional structure and autonomy. The definition of local government is slippery because the two terms, “local” and “government”, remain fiercely contested in theoretical discourses. However, at the core of the conceptions lies a combination of three dimensions, named by Bratton (2008) and Van der Walt (2017) as an administrative dimension, which has to do with executive structures

and municipal sections that deal with service delivery; economic dimensions, which are responsible for revenue generation and collections as well as budgeting, among others; and a political dimension, which is responsible for legislative structures responsible for policies, monitoring and oversight and structures that comprise councils members. Additionally, and importantly, a dimension on social aspects is introduced because at the heart of local government lies the conception of “community”. Thus, local government provides platforms for local people to express their demands and fulfil their human needs (Bratton, 2008; Adetoritse, 2011; van der Walt, 2017).

The local government sphere has an obligation and mandate to provide municipal goods and basic services such as potable water, electricity, sanitation and waste management. In other developing and developed countries there appears to be a drive to professionalise the local government in order to make its systems and processes live up to their constitutional mandate and obligation (Van der Walt, 2017; Landsberg & Graham; 2017, Eds.). This is a global trend and it can only mean that South Africa has to follow suit and redefine the local government imperatives through professionalization and ethical public service, not only in local government but across the board, and to rely on research evidence in this process of redefining and professionalizing government. Van der Waldt (2017: 157) in Landsberg & Graham (2017) argues that in certain parts of the globe these new global developments have resulted in a rapid expansion of roles and responsibilities of the local government by giving rise to imperatives such as local economic development, integrated human settlements and integrated spatial planning. Generally, the role of local government is tied to the following categories as highlighted by Van der Waldt (2017)

a. Allocative, in terms of resources and service delivery that are maximal;

b. Distributive, in terms of equity in social security services;

c. Regulatory, by enforcing laws and by-laws.

3.2.3. The Role of Government in Delivering Public Goods and Services

By virtue of its existence, government should benefit its citizens. How it does so is very important, and therefore the provision and delivery of public goods and services should be planned properly and should assume an integrated approach through the Medium Term Strategic Framework (MTSF) (Maserumule, 2017 in Landsberg & Graham, 2017). Basically, the

MTSF is a five-year plan that comprises issues and mandates from the party of the day, the Constitution and the strategic policy landscape (Maserumule, 2017 in Landsberg & Graham, 2017). The MTSF provides for prioritisation and planning involving all the three spheres of government. The priority setting should ideally be informed by the needs and expectations of the citizens expressed during political campaigns. In addition, government finds itself drawing and developing sector specific strategies, strategic plans such as PGDS, integrated development plans (IDPs), annual performance plans (APPs), and other key macro-economic policies and budgeting plans and processes (Holmes & Evans, 2003; Maserumule, 2017 in Landsberg & Graham, 2017). These macro-economic policies and plans should have indicators and targets. In addition, plans and processes should be aligned to the MTSF and importantly to what is called the Medium Term Expenditure Framework (MTEF). The MTEF is basically a means to achieve the set priorities and targets as enshrined in the APPs and PGDS, among other policies and plans. MTEF is defined as "a tool to manage the tension between competing policy priorities and budget realities; reprioritize expenditure and make informed policy choices that are affordable in the medium term" (National Treasury, 2005: 1; Maserumule, 2017 in Landsberg & Graham, 2017: 120).

To fulfil developmental mandates, provincial governments use provincial growth and development strategies (PGDS) to deliver services to the communities, whereas local governments use plans such as integrated development plans (IDPs) as their vehicle towards priority identification and the provision of services. Ideally, the local government sphere ought to use IDPs for planning and development within its localities. The IDP is by its nature meant to be integrative of developments and entities and bring them together under an umbrella of planning and development; this is also inclusive of processes and systems such as policy formulation, budgeting, programmes and projects implementation (Ingle, 2007). Moreover, an IDP should also be aligned to the PGDS of various provincial governments, although this process is not as easy as one anticipates due to the complexities of process in both provincial and local government (Ingle, 2007; Roefs, Atkinson & Makgoba, 2003). Some of these complexities are because of bureaucratic and red-tape challenges, silo planning or unintegrated planning, uninformed or baseless planning and development processes. To ensure that these plans can direct government in the right direction in providing public goods and service there is a need to put research at the heart of the formulation and development of such plans and to improve the knowledge base and database (Ingle, 2007). This will assist government to know

the realities at grassroots level as to what the intended beneficiaries need and expect from government prior to government planning. This is also a way of assessing if data that informs planning is relevant, current and accurate. It is of paramount importance to ensure that governments take stock of the information and data at their disposal so that improvements are made where data is lacking or outdated, which can be done through conducting research to inform planning and development processes.

3.2.4. The Role of R&D in Planning and Development

There is consensus that research, development and innovation systems have interactions and links in shaping socio-economic development across the globe. Currently the most important resource for planning and development is knowledge and technological generation, production, dissemination and its utilisation (Lundvall, 1992; Nadiri, 1993; Freeman, 2002; Lundvall, 2002; Lundvall, 2007; Patra, 2017; Tsvakirai, et al, 2018). Furthermore, Lundvall (1992) and Lundvall (2007) argue that the long-term effort to promote socio-economic development is dependent on building research, development and innovation systems while simultaneously providing basic living conditions for the people. There is a need for action research to be conducted in the planning and development space within public administration. Ideally, this will provide interventions to address existing socio-economic challenges at grassroots level. Kurt Lewin, who is the founder of the concept ‘action research’ in the 1940s, contended that some of these complex issues and social ills cannot be investigated in laboratories; hence there is a need for governments to conduct action research with the aim of improving the conditions of its citizenry (De Villiers, 2005). It is through action research that a gap between research and practice can be bridged, mainly because action research encompasses both action outcomes and research outcomes. Such outcomes can be implemented to influence policy, practice and programme development to bring about change in the lives of the people and assist government to improve on its mandate (Dick, Passfield & Wildman, 1995; 2005; De Villiers, 2005).

Recent studies indicate that there is a greater correlation between R&D investments and technology adoption and socio-economic development (Caselli & Coleman, 2001; Comin & Hobijn, 2004; Lederman & Maloney, 2003; Almeida & Fernandes, 2007). It has been observed that countries that have adopted technology and R&D have experienced a massive growth in productivity in public administration as well as in firms and the mainstream economy. Generally, the public sector ought to put R&D as one of its key strategic tools for its operations to develop

and increase its knowledge base, develop its human capacity, implement programmes and policies informed by evidence and ensure effective and efficient service delivery to its citizens (Uys & Klopper, 2014). In contrast, most developing countries find it difficult to reform the public sector and adopt technology, innovation and R&D to maximize productivity in the public sector. Among numerous reasons for this, Metcalfe (2008) has identified political instability and financial constraints (Uys & Klopper, 2014).

3.3. IMPORTANT THEORIES AND APPROACHES IN PLANNING AND DEVELOPMENT

3.3.1. The Planning Theory

The concept of planning is as old as the field itself and has for decades been a debatable topic in the planning and development realm (Brink, 1986; Altschuler, 1965; Faludi, 1973; Tsheola, 2011). Altschuler (1965) refers to planning as infusing activities with consistency and conscious purpose. Conyers and Hills (1984:62) define planning as 'a process that involves making decisions about alternative ways of allocating resources to achieve particular goals at some stage in the future.' In his article Tsheola (2011:84) regards planning as 'normative, future oriented and focused on anticipation and reduction of future uncertainty". Dale (2004), Friend and Hickling (1997), Healey (1997), Theron (2007) and Tsheola (2011) hold the view that planning is an attempt to reduce uncertainties that may be posed by the future through managing change in order to achieve desired goals and objectives, and that planning as both a concept and a process is interdisciplinary. Brink (1986) on the other hand asserts that a planner finds ways through information to keep the interests of the public at the centre of planning processes. From this it is clear that planning remains an integral part of development and it is influenced by the socio-economic and socio-political development of a country and a government.

Banugire (1977) posits that scientists in general and planning scientists in particular should from time-to-time conduct planning analyses at all levels of society i.e. international, national, regional, local. In those analysis processes, planning theories should be interrogated in terms of both socio-economic systems and socialist economies. In his book chapter entitled "Planning theory and National Development Planning, Banugire (1977) explains how planning analysis ought to take shape by dividing it into two compartments, the first one being "procedural theory" or theory of planning and the second being "substantive theory" or theory in planning. The former is known as a theory of planning activity and it is usually found in the discipline of planning. The

latter theory is usually regarded as “areas of concern” of planning activity and it usually includes conventional analyses by scientists such as economists, sociologists and political scientists. In fact, theory *in* planning is what most social scientists are concerned with rather than theory *of* planning (Banugire, 1977). The scholarship of planning cannot talk about planning theory without mentioning Andreas Faludi, who made immense contributions in the planning phenomenon by distinguishing between theory of planning and theory in planning. Faludi (1973) advocated that theory of planning should be adopted as the core subject of planning theory rather than theory in planning, mainly because the former helps planners to understand their field and their operating methods and is synonymous with procedural theory (Faludi, 1973; Mukhopadhyay, 2015). Planning in theory, on the other hand, provides planners with a clear understanding of their area of concern and that it is regarded as a substantive theory in comparison with the theory of planning (Mukhopadhyay, 2015). Faludi (1973) contends that theory of planning should be encompassed within the social science field; however; other scholars were strongly resistive towards his notion that posits firstly, that social science is a foreign discipline to the planners, and secondly that substantive theory should be discarded and that planners should treat theory of planning as planning theory proper (Mukhopadhyay, 2015). It is the researcher’s position that despite Faludi’s notion about the two types of planning theory, the fact is these two can actually co-exist because they are both needed for effective planning. Moreover, the two can also be employed when the public sector plans about their planning, which can actually be regarded as ‘meta-planning’, which is in essence getting to know and plan about the planning process itself.

It is also important to be mindful of different types of theory in planning, which are as follows:

- **Traditional and economic planning theory:** this theory embraces sociological and political variables in political economy.
- **Social planning theory:** According to Banugire (1977), this theory embraces social dimension of development, inclusive of socio-political aspects.
- **Administrative planning theory:** This is a consolidation of the above-mentioned theories, which are also inclusive of the politics of planning and planning politics.

3.3.2. Development Theory

Hettne (1995) and Tsheola (2011) describe development theory as a precursor of an integrated historical social science. They share the common view that development theory comprises

different social science approaches that are geared towards addressing socio-economic ills and challenges relating to development and underdevelopment. Tsheola (2011) asserts that development theory refers to theories of societal change, which are aimed at addressing developmental problems through social science approaches. Moreover, development theory is change oriented and encompasses economic, political, social and cultural spheres of development (Schuurman, 2002).

3.4. IMPORTANT THEORIES AND APPROACHES IN PUBLIC ADMINISTRATION

The discipline of Public Administration has long suffered an 'identity crisis', with some scholars placing it in different field and disciplines such as political science, management science and even social science (Donald, 2010; Kenneth, 2010; Pollitt, 2010; Aderigibe et al., 2014; Van der Waldt, 2017). Additionally, Pollitt (2010: 292) maintains that Public Administration as a discipline "suffers from multiple personality disorders". It goes without saying that Public Administration is interdisciplinary and thus borrows theories from different fields and areas. Within the Public Administration discipline one is able to apply organisational theories, social theories, and political theories; hence the discipline is diverse in its nature (Van der Waldt, 2010). Thus Golembiewski (1977) regards it as a "family of mini-paradigms". It is for these reasons that research done in this field becomes complicated and complex due to the nature of Public Administration as a field/discipline and as a practice that requires multifaceted approaches, theories and models.

Van der Waldt (2017) explored theories for research in public administration and unearthed over 350 theories that are potentially relevant for public administration, theories discovered through platforms such as databases from national and international public administration associations. Furthermore, he identified substantive theories that could be adopted, analysed and used for knowledge constructions and for developing theoretical and conceptual frameworks in relation to the area of study. He also included a list of meta-approaches or key issues and matched this with grand and substantive theories for public administration research, some of which are relevant to the subject at hand, including the following:

- **Moral Government Theory, Theories of Governance and Evolutionary Theory** These theories are linked to themes that are centred around government and governance; the meta-approach or key issues are on ideal state, productivity, performance, growth and basic human rights, among others;

- **Bureaucratic Politics Theory, Functionalist Theory, Theory of Bureaucracy and Excellence Theory** These are linked to issues around good governance and systems of government/state structures. Some meta-approaches and key issues that can be influenced by these theories are related to outcome/results based, value for money, network government, collaboration and comparative analyses, among others;
- **Public Institutional Theory, Theories of Bureaucratic Theories, New Public Administration Theory, Public Management Reform Theory; Public Management Theory** These theories lean towards issues of modernizing government, administration and politics dichotomy. They concentrate on the paradigmatic perspective on classical and postmodern public administration;
- **Theories of Public Management, Classical to modern management approaches and theories, Principle of management and Management Practice Theory** These theories are best suited to issues such as public management functions, application, skills, techniques and tools. Moreover, they are most useful for reform and networking in public management;
- **Diffusion of Innovation Theory (DOI), Knowledge Gap Theory, and Actor Network Theory** These theories are more focused on technology and innovation in the public administration/Public Administration realm, both as practice and discipline. Key issues such as e-governance, big data, knowledge management, e-decision making and early adopters could be influenced by these theories; and
- **Grounded Theory, Critical theory and Interpretive Theory** These are focused on the knowledge construction and production aspect of research and its theory development process. Meta approaches and key issues in this case include phenomenology, constructivism, qualitative, quantitative and mixed methods research, induction and deduction.

Apart from these theories of public administration, also of interest are the New Public Management Theory and Public Management Reform (PMR) theory, which advocate improved public sector administrative structures, coordination, management and operations (Vyas-Doorgapersad, 2011). The appeal of this theory is that the study itself is geared towards promoting and advocating reform in the public sectors; this is supported by the PMR theory, which aims at promoting a better and modernized public sector that delivers basic services in

an effective and efficient manner (Omoyefa, 2008: 18; Vyas-Doorgapersad, 2011). Also, the theory is inclined towards making states or government institutions more “market friendly, lean, managerial, decentralized and customer friendly” (Omoyefa, 2008: 18; Vyas-Doorgapersad, 2011). The reform theory provides a paradigm shift in how public institutions ought to operate and manage the public affairs in comparison to how they traditionally operate. This involves public institutions doing things differently, such as having a paradigmatic shift towards planning, development, economic and social reform and digital governance/e-governance (Vyas-Doorgapersad, 2011). There is a greater likelihood that when institutions apply these paradigm shifts their performance will reach greater heights. The public administration’s focus on reforming the public sector will provide a space for public institutions to do away with a compliance approach and adopt a results-based approach instead (Mauri & Muccio, 2012).

The R&D model that is developed in this study serves to affirm public management reform theory’s essence on using new paradigms to improve the public sector’s administrative, management and traditional operations by using R&D and linking it to how it can play its role in planning and development in provincial administration by putting R&D investment at the heart of public administration.

3.4.1. Public Administration Approaches

- Below are the public administration approaches associated with modernism or mainstream public administration. **Mechanistic behaviour approach:** this approach reflects machine-like behaviour in a public administrator that is inclined towards the observance of bureaucratic rules and procedures (Nkuna & Sebola, 2012).
- **Behavioural Approach:** this approach emphasises the significance of having the public administration workforce that relates well with one another; thus, work group interpersonal relations, good attitude, good morale and behaviour increase productivity and effectiveness in a work environment (Fenwick, 1995; Nkuna & Sebola, 2012). This approach promotes a work group approach rather than an individualistic approach, mainly because good workgroup interrelations improve output and performance in a workspace.
- **Systems Approach:** this approach encompasses processes, tools, approaches and the role played by individuals and agents in the functioning of public administration (Nkuna & Sebola; 2012).

3.4.2. The Paradigms of Public Administration

In the contemporary public sector, there is a growing trend that suggests governments should be people centred or client-centred by emphasising the role played by people or the public in developmental issues (Thornhill & Van Dijk, 2010). The current notion in public administration is geared towards public participation and involvement in policy development and implementation as well as building developmental programmes. The paradigms below illustrate how public administration has evolved over the years.

- **The New Public Administration:** This paradigm emerged in the late 1960s during the Syracuse University Minnowbrook Conference in 1968. It is famously known as the Minnowbrook Perspective (Thornhill & Van Dijk, 2010). The cornerstone of this paradigm is that public administrators should not only be responsible for policy implementation but also for policy development and formulation (Denhardt, 2008; Thornhill & Van Dijk, 2010). The argument was that the involvement of public administrators from the policy formulation stage will widen the scope of public administration and also afford an opportunity to public administrators to be central to policy development to ensure the successful implementation of the very policies that they have developed, thus creating a sense of ownership towards such policies. Denhardt (2008) posits that the New Public Administration aims to understand the meaningful impact of policy on the lives of the citizenry. The New Public Administration had its weakness, especially in terms of mapping out what sort of societal values should be prioritised when implementing it.

- **New Public Management (NPM):** The emergence of the NPM was in the 1970s during the financial crises. This paradigm was deeply rooted in the notion of accelerating and maximising productivity, efficiency and effectiveness, performance, accountability and the decentralisation of decision-making within the public sector (Bagby & Franke, 2001; Denhardt, 2008; Thornhill & Van Dijk, 2010). This paradigm emphasises the need to separate politics from public administration. This is similar to what Wilson Woodrow advocated in the past (Wilson, 1887; Thornhill & Van Dijk, 2010; Aderibigibe et al., 2014; Mokgokong & Mukonza, 2022). However, the NPM goes beyond the separation of politics and administration in the sense that it focuses on the nexus between economic market, politics and public administration as well as

ensuring that adequate inputs (resources) are directed towards the benefit of the public. Similarly, outputs as activities that lead to satisfying the needs of the people require a rational process (Thornhill & Van Dijk, 2010). Bagby and Franke (2001) argue that NPM is good for competition within the public sector and that the language of contracts may replace the language of politics as it provides space for equity, fairness and a ground for common good. However, this is not necessarily the case, as in some states such as South Africa the language of contracts is influenced by politics and politicians who use their influence to decide who get contracts. Moreover, NPM as a paradigm has been widely criticized. Noordhoek and Saner (2005) suggest that one of the main reasons for the discrediting of the NPM is that the paradigm needs a long-term approach and investment and that cannot be the case where a government is driven by short-term approaches. Hence, the NPM paradigm is viewed as a luxury that the public sector cannot afford to adopt and promote. Denhardt and Denhardt (2004 contend that the basis and foundation for NPM paradigm should not just be discarded because it has the potential to give birth to a government that is operating differently as a responsive and effective sector, hence the conceptualisation of a paradigm called the New Public Service (Denhardt, 2008).

- **New Public Service:** The NPS is viewed as an alternative for NPM because of its centrality in empowering and involving citizens in the affairs of government (Denhardt, 2008; Thornhill & Van Dijk, 2010). Basically, the NPS primarily encourages building a sense of community that will eventually create a sense of ownership from the citizens' side as they participate in issues that concern them; this therefore creates a scope for discipline amongst the citizens. This paradigm encourages the state to create a conducive environment for citizens (whether from the public or private space) to interact with each other and participate in important developmental issues.

- **E-Governance:** Mukonza (2014) explored e-Governance as a new paradigm in public administration, viewing it in three perspectives. The first is that with the introduction of information and communication technology in governance, a new dimension called e-governance was conceived. Through the adoption of this new paradigm it is argued that government's public goods and service delivery mandate

will be done in an efficient and effective manner. The second perspective is that the e-governance paradigm is viewed as a tool to accelerate democracy and participation in society, which will ultimately enhance good governance (Satyanarayana, 2004; Mukonza, 2014). Lastly, Mukonza (2014) argues that e-governance should be viewed as a new paradigm of public administration in its own right, arguing that the adoption of this new paradigm has changed the operations and functions of government in how it interacts with other government entities (G2G) and other stakeholders (G2C and G2B).

3.5. SUMMARY OF THE CHAPTER

This chapter has illustrated that a planning and development discourse in South African public administration is not only important for socio-economic development but remains an integral part of the existence of any public administration. It is through planning and development processes that government can deliver public goods and services to the intended beneficiaries. Notably, strategies and plans are developed with the intention of addressing existing issues at the grassroots level through the implementation of programmes and projects. However, it remains evident that with all these plans and strategies at the heart of a democratic South Africa there seems to be a challenge to execute them successfully. It has been argued that the use of empirical evidence to inform planning and development processes is an extremely deep challenge in the public sector. The challenges of attuning the public sector towards achieving its mandate pertain to the inability to use research, development and innovation as tools to bring about mechanisms to address the existing triple challenges of poverty, inequality and unemployment as enshrined in the National Development Plan (NDP, 2015).

Over time scholars have converged on how to merge planning and development within public administration by coming up with theories, models, approaches and paradigms (some of which have been highlighted in this chapter). Additionally, this merging advocates for the proper execution of the public sector's mandate and its obligation towards bettering the lives of the people through service delivery, as enshrined in the Constitution. This advocacy has been extended to all spheres of government i.e. national, provincial and local government. Hence Maserumule (2017) argues that these three spheres of government should exercise cooperative governance and work collectively with the best interests of the populace at heart. It is fundamental that government treats its people in a moral manner, thus providing them with the

necessities as mandated by the Constitution. Scholars argue that for a South African public administration to forge its role in the democratic South Africa it should start by defining who the “public” is and what constitutes the public in a South African context. This interrogation can assist government to fashion a public sector that intends to achieve its constitutional obligations.

CHAPTER 4: THE CONCEPTUAL FRAMEWORK

4.1. INTRODUCTION

According to Ngulube, Mathipa and Gumbo (2015), most researchers use the terms conceptual framework and theoretical framework interchangeably and without explaining each of them and differentiating between them, hence there is widespread confusion among researchers and postgraduate candidates about the differences. Ravitch and Riggan (2012) argue that a theoretical framework is an aspect of a conceptual framework. Creswell (2009) and Ravitch and Riggan (2012) suggest that the employment of these two terms varies in accordance with scholarly traditions and one's academic field and that it also differs from one researcher to another. It is therefore important for scholars and researchers to make a point that these two concepts are well explained to avoid confusion (Ngulube et al., 2015). It also needs to be emphasised that "theory" comprises models, concepts, constructs and propositions (Ngulube et al., 2015). Silverman (2000:77) emphasises that "a concept derives from a given model and a theory is a set of concepts used to define and/or explain some phenomenon", including social phenomena. Furthermore, Anfara and Mertz (2006) posit that constructs are formed from concepts, hence it cannot be correct to use the terms "theory" and "models" interchangeably and loosely. Models lead researchers towards developing conceptual frameworks, whereas theories lead them towards developing theoretical frameworks (Ngulube et al., 2015).

According to Ngulube et al. (2015:47), "a conceptual framework shows the relationship between concepts and their impact on the phenomenon being investigated". Basically, conceptual frameworks provide a clear understanding on the subject or phenomenon being studied (Ngulube et al., 2015; Ravitch & Riggan, 2017; Van der Waldt, 2020). Studies have defined the term conceptual framework in different ways: Lester (2005:460) defines it as "an argument that the concepts chosen for investigation, and any anticipated relationships among them, will be appropriate and useful given the research problem under investigation". Furthermore, a conceptual framework is seen as "both a process and a framework that helps to direct and ground researchers; it is an argument about why the topic of study matters and why the methods proposed to study it are appropriate and rigorous (Ravitch & Riggan, 2012). Van der Walt (2003:19) contends that "a conceptual framework explains either graphically or in a narrative form, the main dimensions to be studied—the key factors or variables and the presumed relationships. A framework can be rudimentary or elaborate, theory driven or commonsensical,

descriptive or causal". Furthermore, a conceptual framework is deeply rooted in theory, research and the scientific approaches of a specific discipline and field (Van der Waldt; 2017:186).

4.2. THE RATIONALE FOR THE STUDY AND ITS MAJOR DIMENSIONS

The debate regarding government's use of R&D as a strategic and developmental tool as well as investing and funding R&D in the public sphere (government) has been a topical issue over the years. In this debate it has been evident that R&D is a vital asset for government's sustainable planning and development (Fourie, 2007; Gyekye, 2012; Perrot et.al, 2013; Chen et al., 2019). Globally, countries with thriving economies have constantly highlighted that research, development and innovation are the key contributors to their economic growth and socio-economic development (Chen, 2019). An emphasis from developed countries is that research is not conducted for its own sake but to inform their planning and development and to shape their economy (Rosenhead &Tripathy, 1996; Fourie, 2007). Studies have shown that statistics and research are scientific tools used to solve existing problems, thus they ought to be at the centre of the planning, implementation and monitoring of government programmes and for growing and developing the economy (Rosenhead & Tripathy, 1996; Fourie, 2007). It is for this reason that research can be used as a catalyst and an accelerator for proper planning and development in public institutions, i.e. government.

Researchers in developing countries such as South Africa still have a lot of work to do on the significance of governments investing in R&D, more especially provincial governments. There is a dearth of literature on the contribution of R&D in provincial administration and its planning and development; this is a literature gap identified by this study. The majority of studies conducted on this phenomenon have concentrated on developed countries and their national governments more than on provincial governments. Consequently, a lot of literature focuses more on the application of R&D in developed countries and in cases where developing countries are mentioned it is often at the level of national governments. Gyekye et al. (2012) raised this concern looking at it from the developing countries' point of view, confirming that most literature focuses on the link between research, development and innovation and socio-economic development in developed countries, not in developing countries.

Bassanini & Scarpetta (2001) and de la Fuente and Ciccone (2002) have produced empirical evidence on the impact of R&D in developed countries such as the USA, Japan, France and

Germany. These studies confirm that R&D is key for sustainable socio-economic development, planning and economic growth. These studies and many others support the general contention that R&D is also critical for developing countries and more importantly for developing and sustaining provincial economies. Furthermore, it should be noted that it is through R&D that the lives of the people can be improved. Little research has been done about the link between R&D and development and planning in provincial administration, which is worrisome in an era where knowledge economy is key. It is well-established that the governments' pursuit towards improving the lives of the people through the provision of public goods and services as mandated by the Constitution is greatly dependent on empirical evidence to form the basis of their developments and planning. Conversely, as already mentioned, there is a dearth of such empirical evidence that is cascaded to the provincial level. Hypothetically, one of the reasons for provincial administration development and planning not being linked to R&D might be the dearth of such information on provincial governments. It could be that researchers and academics have not sufficiently advocated for R&D as the critical factor to fuel and accelerate planning and sustainable development, especially at the provincial level; and that they have not pushed for research uptake when studies are completed. Conversely, it could also mean that administrators and decision makers have not understood the role of R&D in achieving developmental goals, especially at provincial levels; hence, they are not proactive in ensuring that research uptake is done when studies are completed. It is for this reason that this study will also be contributing to the body of knowledge on this phenomenon and simultaneously advocating for the use of R&D for provincial planning and development.

The study is rooted in theories of the Public Management and Public Administration disciplines as a way to advance constructs and concepts pertaining to the studied phenomenon. These theories assist in providing a contextual orientation about the phenomenon under investigation and serving as a guide to navigate existing knowledge gaps and predict results and findings of the study. Hence, the underpinning theories for this study are as follows:

- **The New Public Management (NPM) Theory:** The emergence of the NPM was in the 1970s during the financial crisis. This is directed at accelerating and maximising productivity, efficiency and effectiveness, performance, accountability and the decentralisation of decision-making in the public sector (Bagby & Franke, 2001; Denhardt, 2008; Thornhill & Van Dijk, 2010). Additionally, the NPM is a way of reorganizing public sector bodies to bring their management approaches closer to

business methods. Its relevance for the study is that it guides the study in introducing modern ways of accelerating productivity in contemporary South Africa's public/provincial administration. The theory suggests that public administration ought to utilize R&D in order to improve its effectiveness and efficiency on how it delivers services to the clientele, which are communities or citizens.

- **Public Management Reform (PMR) Theory:** This theory also advocates improved public sector administrative structures, coordination, management and operations (Vyas-Doorgapersad, 2011). Similar to NPM theory, this theory also advocates reform in the public sector's operations and functioning. Additionally, the theory guides the researcher in conceiving a public sector that is transformed and improved in how it manages its affairs and operations as well as how it administers and manages the public functions through the reliance on and utilization of R&D as a strategic tool.

The adoption and implementation of the NPM and PMR theories have been misunderstood and often failed to meet expected results despite high expectations over the years (Mauro, Cinquini & Pianezzi, 2021). Of course, a counter-ideology from the literature indicates that not all NPM reforms fail and where they do fail there are different reasons for such failures (Pollit & Bouckaert, 2011; Ashraf & Uddih, 2016). Other scholars contend that the NPM does not necessarily present any paradigmatic shift even though it may appear to have a new mix of characteristics (Gruening, 2001).

Both the NPM and PMR theories complement each other in the following sense:

- They both argue that public administration ought to utilize R&D in order to improve its effectiveness and efficiency in delivering services to the clientele, which are communities or citizens; and
- They both envisage a public sector that is transformed and improved in how it manages its affairs and operations as well as in how it administers and manages the public functions through the reliance on and utilization of R&D as a strategic tool.

Some of key proponents of the NPM include Osborne and Gaebler, 1993, Borins 1994, Aucoin, 1995, Reinermann, 1995, and Kamensky, 1996.

The conceptual framework of this study is linked to the research questions and objectives. The conceptualization was guided by the following areas of the the study: the role of R&D in

provincial planning and development**;** planning and development approaches in provincial administration; challenges faced in provincial planning and development; the level of investment and funding on R&D in Provincial Administration; determining/motivating factors of R&D investments and funding; and concepts, constructs and other models to assist the researcher to develop a suitable R&D model for South Africa's provincial administration.

4.3. THE RELATIONSHIP BETWEEN KEY CONCEPTS AND VARIABLES: CONCEPT MAPPING

Studies have shown that the best way to develop a conceptual framework for one's study is to do it diagrammatically in order to depict key concepts and their relationship and linkages (Miles & Huberman, 1984; Silverman, 2000; Ngulube et al., 2015 in Mathipa & Gumbo Eds.; Ravitch & Riggan, 2016; Van der Waldt, 2020) This diagrammatical explanation of the study's conceptual framework is often referred to as a concept map or conceptual modelling (Robson, 2002; Ngulube et al., 2015 in Mathipa & Gumbo Eds.; Ravitch & Riggan, 2017; Van der Waldt, 2020). In this study the method of concept mapping depicts relationships and interconnectedness between key concepts and organizes and structures the knowledge on the studied phenomenon. Figure 4.1 illustrates the relationship between key concepts and variables in this research study.

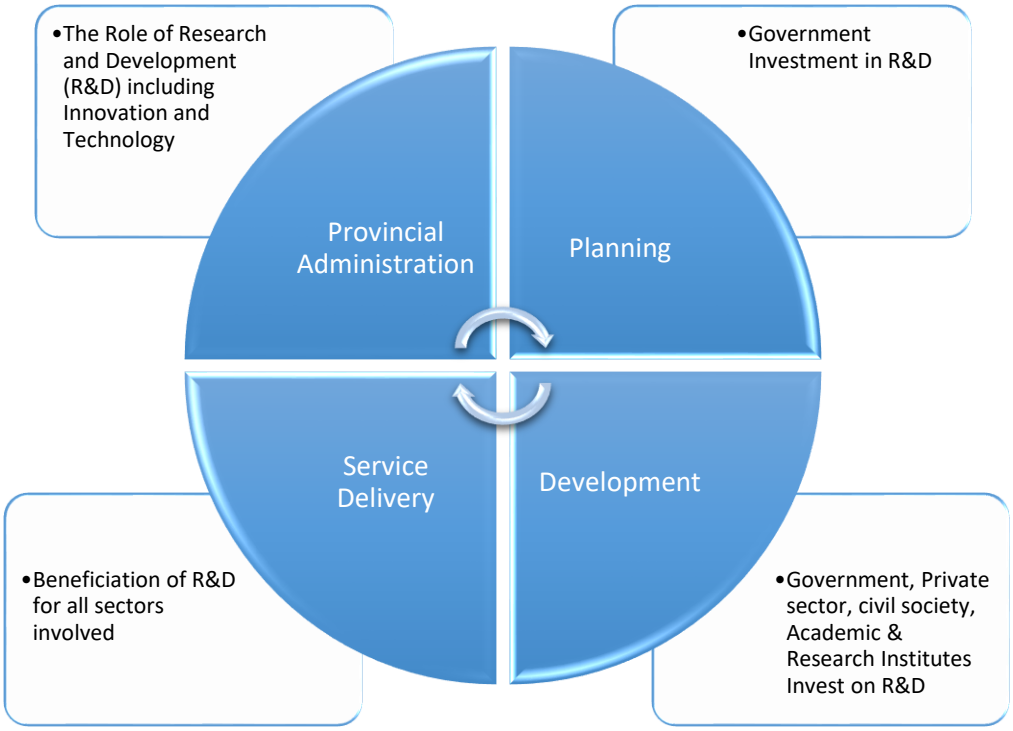

Figure 4.2: The Concept Mapping for the Study

Source: Author's own illustration

The above figure presents the relationship between important concepts in the study. The concept of provincial administration revolves around planning, development and service delivery. This connection is informed by the constitutional obligations of provincial government/administration for the provision of public goods and services. These constitutional obligations are dependent on development&D as a vehicle to accelerate the provision of services to the citizenry. Hence, it is important for government to collaborate with various sectors such as the private sector and universities and to invest in R&D to better the lives of the people as mandated by the constitution.

4.4. THE SELECTED METHODS

The compilation of the research plan, structure and strategies for the study is based on the evidence of their dependability for producing accurate results**.** The study employed a qualitative method as it is more relevant in dissecting and exploring the research questions (more information is provided in Chapter 5 on the research methodology) Through a qualitative method the researcher was able to gather more views and perception from respondents about the

phenomenon of R&D and its links to planning and development within provincial administration. Furthermore, the researcher gained insights from the relevant officials who are working with issues of R&D, planning and development on a day-to-day basis, which has given the researcher a platform to know more about issues around government's investment in R&D in provincial administration. It has been evident on an international or global platform that governments and industries that choose R&D investment and funding have created better economies for their countries and improved the lives of their people. Therefore it is undisputed that R&D has a vital role to play in how countries shape their planning and development landscapes, including policy directions. Hence, the researcher has adopted a case study research design to answer the research questions, to provide guidance on the kinds of data gathered to answer those questions and how data was collected and analyzed (Chapters 5 and 6).

4.5. SUMMARY OF THE CHAPTER

This chapter illustrates the relationship between the concepts and variables of this research study by using the concept mapping in Figure 4.1. The aim of this chapter was to describe the relationship between concepts in the study and to provide the rationale for the studied phenomenon and its major dimensions, namely the role of R&D in provincial planning and development; planning and development approaches in the provincial administration; challenges faced in provincial planning and development; the level of investment and funding on R&D in provincial administration and determining/motivating factors of R&D investments and funding. This chapter also indicates how the dimensions of this research are linked to the research questions and objectives. The basic outline for the research methods and data analysis are provided to show the conceptualization of this study.

CHAPTER 5: RESEARCH METHODOLOGY

5.1. INTRODUCTION

Leedy and Ormrod (2001: 14) define research methodology as “the general approach the researcher takes in carrying out the research project”. This study is qualitative. According to Leedy and Ormrod 92001) and Creswell (2003) there are various methods of conducting a study of a qualitative nature, for example case study, grounded theory, phenomenology, and ethnography. The research methodology section of a study ought to provide information on the reasons behind the selection of the methods, designs, approaches and instruments that were employed. Hence, this chapter focuses on the research plan, structure and strategies that were adopted for the study, which are based on the evidence of their dependability for producing accurate results. The chapter also outlines the research methodologies adopted in this section and provides the rationale behind the selection of the methods and instruments.

5.2. RESEARCH METHODS AND DESIGN

The qualitative method adopted for this study was most relevant in assisting the researcher to dissect and explore the research questions. An interpretivism paradigm was adopted for its suitability and ability to allow the researcher to have systematic interactions with the respondents. Hence, acase study research design was considered most relevant for providing guidance on the kinds of data needed to answer the research questions and to systematically plan how data would be collected and analysed. Moreover, the study was inclined towards a grounded theory, which is focused on the knowledge construction and production aspect of research and its development process (Brynard et al., 1997). The study is descriptive and analytical in its design mainly because it was conducted in three provinces, namely Limpopo, Gauteng and Northwest, and it therefore included a comparative analysis of the differences and similarities in these three provinces as three case studies. The study adopted a case study research design as it sought to understand R&D as a phenomenon and its links with planning and development in provincial administrations. A case study research design is “an approach to research that facilitates exploration of phenomenon within its context using a variety of data sources” (Baxter & Jack, 2008:544). Adopting this particular research design has enabled the researcher to look at the phenomenon through various lenses so as to allow for its multiple sides to be discovered and comprehended (Jack & Baxter, 2008).

5.3. THE STUDY AREA

The study area is located in the Republic of South Africa in Limpopo, Gauteng and North West provinces. The following universities were used as study sites: In Limpopo the universities of Limpopo and Venda; in Gauteng the University of South Africa and in North West the North West University. The figure below illustrates the study area.

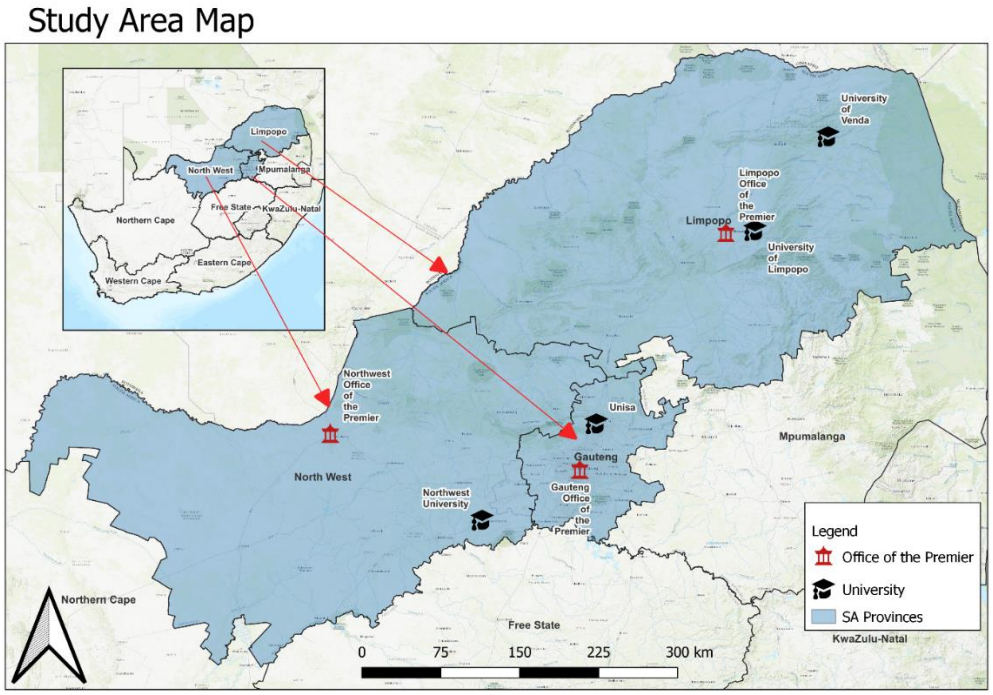

Figure 5.1. The Study Area Map

Source: Limpopo Office of the Premier GIS Directorate

The selection of the Limpopo, Gauteng and Northwest provinces was based on their provincial performances in planning and development and whether the execution of planning and development was influenced by R&D. The selection of these provinces was purposive, influenced by the fact that both the 1998 PRC report and the Presidency's twenty (20) year review of South Africa 1994-2014 reported that Limpopo and Northwest were the worst performing provinces as far as service provision was concerned. As a better performing province, Gauteng Province was included to provide a comparison with the other two provinces.The focus in these three provinces was firstly on the Offices of the Premier, as they are mandated by the Constitution to play a coordinating and oversight role. Secondly, the focus was also on members of research forums/structures in these selected provinces. These

research forums are coordinated by the offices of the premier as platforms that bring together a wide research community within the provinces. The representation in these forums would include universities, research councils, business and state-owned enterprises, district and local municipalities and other stakeholders. Lastly, the focus was on directors of research, development and innovation in selected universities; for example a delegated person from the Northwest University was a participant. This delegated official was someone who had a clear understanding of R&D issues in the university, the relationship between the university and the provincial administration and the role universities play in provincial planning and development.

5.4. KINDS OF DATA REQUIRED

The study required both textual and factual data. Textual data includes theories on R&D and public administration, the approaches adopted for planning and development, the governance of the three spheres of government, the role of planning and development in planning administrations and the role of R&D in planning and development. The textual data was also derived from the strategic plans and research frameworks of the selected provinces, journal articles, policy briefs, books, speeches, and other sources. The factual data was derived from interviews with officials in the provincial office of the premier, research directors or delegated officials in selected universities, and selected members of research forums in the three provinces.

5.5. TARGET POPULATION

Target population means the total number of people, groups or organisations included in the study (Bertram & Christiansen, 2018). As indicated on the study area under item 5.3, the study targeted the offices of the premier in the provinces. In each of them the study targeted chief directors, directors, deputy directors or assistant directors responsible for research, policy coordination and strategic planning units. The study also targeted two representatives who form part of existing research forums in each province. However, research forum members in Gauteng Province did not participate due to a lack of interest; but in Limpopo and Northwest the interest to participate was so high that two more research forum members from Northwest were included in the sample as substitutes for the missing two from Gauteng. The study also targeted existing universities in the targeted provinces to gain more insight into the existing research partnerships between government and academic institutions, the role of universities in provincial

planning and development and how the provincial administration and universities collaboratively tackle R&D issues in relation to planning and development issues.

The persons of interests in these institutions were the heads or directors of research directorates in the universities. In Limpopo the study focused on directors of research and innovation in the universities of Limpopo and Venda. In Gauteng, the study was initially set to target directors of research in Tshwane University of Technology, the University of South Africa (UNISA) and the universities of Johannesburg and Witwatersrand. In Northwest the director of research, development and innovation in Northwest University was targeted. However, a lack of interest from the targeted officials subverted the study's plan to interview these cohorts. The researcher therefore had to focus on UNISA only as the other pre-selected universities were not interested in participating. In addition, in Northwest University the Director of Research was unavailable and the Executive Manager, with a wealth of knowledge on the subject of enquiry and great experience on working relationship between the university and provincial administration, was interviewed instead.

5.6. SAMPLING METHOD

Sampling is defined as the points of data collection to be included in a research project, including persons, documents, institutions and settings or any source of information or data gathering (Mathipa & Gumbo, 2015). Sampling simply means "taking any portion of a population or universe as representative of that population or universe" (de Vos, 2001:190). A sample is defined as "the element of the population considered for actual inclusion in the study or a subset of measurements drawn from a population in which the researcher is interested" (de Vos, 2001:191).

The sample comprised a total of nine officials in three offices of the premier in Limpopo, Gauteng and Northwest, a total of six research forum members in Limpopo and North West Provinces, and seven directors of research in the universities of Limpopo, Venda, Northwest and UNISA. A purposive sampling method was adopted both for selecting the study areas and for sampling the key informants in offices of the premier, research forums/structures and universities. The selection was a deliberate choice due to qualities the key informants possessed and the positions they held in their respective institutions or organisations. This sampling method is also known as "judgmental" sampling, mainly because it relies on the

researcher's judgement in selecting the population or units to be studied (de Vos, 2001). A total of 19 people were interviewed in the study in comparison to the initial targeted number of 22 key informants from the sampled institutions.

The issue of sample size in qualitative research has long been debated. Mwita (2022) notes that researchers from a constructivist school of thought have been critical of the relatively small sample sizes in qualitative research, arguing that they are not sufficient for generalization. However, what is important and critical in qualitative research is the in-depth data that is collected from the relevant respondents rather than the big sample size; the depth of data collection is what justifies the sample size in the context of qualitative studies (Tran, Porcher, Tran & Ravaud, 2017; Mwita, 2022). The researcher reached a point of data saturation at interview number 17 but decided to proceed up to interviewee number 19 with the hope of getting new information. Data saturation is when the researcher has reached a point of not getting any new data or discovering more information related to the research questions (Lowe, Norris, Farris & Babbage; 2018). According Tran et al. (2017), establishing the point of data saturation is difficult as the researcher is the only individual who has information on what they have found; the decision to stop the collection of data when a point of data saturation is reached depends solely on the researcher's judgement and experience.

5.7. DATA COLLECTION

The study gathered both textual and field data. The textual data was accumulated through desktop research and literature search techniques. The textual data resources included journal articles, books and government documents such as strategic plans and frameworks that contain descriptions and discussions on the discourse of the role of R&D in planning and development. Field data was gathered using semi-structured interviews with the 19 key informants in the targeted institutions. The semi-structured interviews required separate sets of interview sheets for officials in offices of the premier, research forum members and directors of research from the selected universities in order to get answers to the research questions probing the role of R&D in planning and development for provincial administration. Due to the Covid-19 pandemic, some of the interviews were held electronically through Microsoft Teams Meeting and proceedings were recorded with the permission of the participants; alternatively, interview sheets were sent to the other respondents to complete and return to the researcher.

Initially the researcher wanted to do observations through attending meetings such as strategic planning sessions if permitted by the relevant authorities. However, this was not possible due to the Covid-19 pandemic, which made it difficult to hold physical meetings and restricted virtual meetings to the relevant officials and not external participants. The aim of these observations would have been to determine if discussions around planning and development were tabled during strategic planning sessions and other similar platforms. This would have provided more insight on how selected institutions address the phenomenon of R&D and its role in the planning and development of provincial administration and possibly the extent of universities and research forums' involvement in this regard. However, the researcher performed document analysis as detailed in Table 7 below, illustrating different documents that were analysed from each province.

Table 7: Analysed government documents

Documents	**Province**
1. Provincial Growth and Development Strategy (PGDS) 2. Northwest Office of the Premier Annual Reports 2017/2018 to 2021/2022	North West Province
3. Growing Gauteng Together: 2030 (GGT) 4. Gauteng Annual Reports 2017/18 to 2021/22	Gauteng Province
5. The Limpopo Development Plan: 2019-2024 6. The Provincial Research and Development Framework 7. Limpopo Budget Reports 2017/18 to 2021/22	Limpopo Province

Source: Author's own illustration

5.8. PILOT STUDY

According to Baker (1994), Van Teijlingen and Hundley (2001) and Polit, Beck and Hungler (2001), a pilot study refers to feasibility studies and specific pre-testing of research instruments or data collection tools such as questionnaires and interview schedules. In this study a pilot study was conducted with the aim of pre-testing the data collection instruments and possibly

identifying any shortcomings that may arise during the full-scale study. This improved the data collection instruments in preparation for the full-scale research. To this end the researcher interviewed five participants who had the same characteristics as the respondents who were sampled in the full-scale study although they were not part of the full-scale study itself. They included officials in government, university representatives and research forum members. Most of the feedback from this exercise was very positive and respondents made suggestions on how to improve the interview guide going forward. The researcher addressed all their concerns, comments and suggestions. The findings of the pilot study were very informative and assisted the researcher to understand better how the full-scale study should be rolled-out.

5.9. DATA ANALYSIS PROCEDURES

One of the most critical things when analysing the data was data filtering. This involved an in-depth analysis of all the collected data to filter what was irrelevant from what was critical to the research (Brynard & Hanekom., 1997). The coding technique used was a method of constant comparison analysis, initially conceptualized for grounded theory research design (Brynard et al., 1997). However, this coding technique can also be used in other qualitative approaches such as the case study design adopted for this study. The researcher developed themes and common patterns emerging from the data that related to the title, the statement of the problem, and the research questions and objectives. This was done through thematic analysis following seven steps adapted from Clarke & Braun (2006) and Braun & Clarke (2013):

- transcribing data;
- taking note of items of interest;
- coding across the entire data set;
- searching for themes;
- reviewing themes by mapping provisional themes and their relationship;
- defining and naming themes; and
- doing a final analysis

In addition, a qualitative analysis tool named ATLAS.ti allowed the researcher to do data coding and develop themes.

Trustworthiness of the Study

Trustworthiness is emphasized for qualitative research as a way for a researcher to persuade themselves and readers that the research process and findings are valid, reliable and of good quality (Lincoln & Guba, 1985; Anney, 2014). This aspect of the study confirmed that the data analysis process was undertaken in a precise, consistent, valid and reliable fashion and that the results were useful (Anney, 2014). The researcher ensured trustworthiness by doing the following:

Validity: firstly, the researcher ensured validity by presenting the data collection tool to her supervisors for their inputs; and secondly by conducting a pilot study prior to the commencement of the full-scale project to test the data collection tool and how feasible it was to conduct the study.

Credibility: credibility is defined as "the confidence that can be placed in the truth of the research findings (Anney, 2014: 276). The researcher made use of peer debriefing and engaged extensively with peers to obtain their perceptions, views and guidance to improve the quality of the findings. Additionally, the researcher did member checks with various respondents from whom data was collected to eliminate any evidence of bias when analyzing and interpreting data.

Confirmability: this refers to the extent to which "the results of an inquiry could be confirmed and corroborated" (Anney, 2014: 279). The researcher used an audit trail to ensure that there was confirmability, thereby providing tangible evidence from research process to research product. According to Bowen (2009: 307), this will prove that the "researcher did not simply find what he or she set out to find."

Dependability: according to Bitsch (2005: 89), dependability refers to "the stability of findings over time". The researcher had to re-evaluate the findings, interpretation and recommendations of the study using an audit trail and code-recode strategy. This was also done to gain more insight about the data patterns and to improve on how the narration of the participants was presented.

Transferability: this refers to the extent to which the results can be transferred to different contexts (Bitsch, 2005; Anney, 2014). To ensure transferability the researcher provides detailed research processes that may be found useful by other researchers studying a similar phenomenon in a different context.

5.10. ETHICAL CONSIDERATIONS

Ethics is about about doing good (beneficence) and doing no harm (non-malfeasance) ; it has to do with behavioural patterns that are right or wrong. According to Bertram and Christiansen (2018), ethics are extremely important in research that involves human participants and animals. Higgs (2013) defines ethics as “something you cannot touch or feel but as the values and principles which are acceptable to the society”.

Permission to conduct the study

Permission to conduct the study was granted by the accounting officers of all sampled institutions. The ethical clearance was granted from the Tshwane University of Technology (TUT) Faculty Committee for Research Ethics- Humanities (FCRE-HUM) approval number FCRE/PM/STD/2020/16 and the provincial ethics committee named Limpopo Provincial Research Ethics Committee (LPREC) approval number LPREC/24/2021: PG..

Informed consent

The researcher obtained the consent of every respondent prior to the commencement of the interview and provided participants with an information leaflet that gives a brief background of the study to explain what the study entailed. Additionally, respondents were notified that their participation would be voluntary and they were at liberty to withdraw their participation should they feel the need to do so. Due to the Covid-19 regulations the researcher opted to do online interactions with the participants and to provide the informed consent form electronically for the participant to complete and return.

Confidentiality

In this study, the researcher had the responsibility to ensure that the respondents’ confidentiality is protected at all times. The collected data is kept safe on the researcher’s computer and can only be accessed through password credentials.

Anonymity

The researcher ensured that the respondents were not identifiable and could not be traced in any way by using pseudonyms and codes known only by the researcher to identify each respondent.

Harm

The study did not pose any physical harm in the form of injuries, or infringe on the rights of the respondents or cause any emotional harm as it is ranked as low risk. It was the responsibility of the researcher to guard against any potential harm that may affect the respondents.

Beneficence

The study will benefit the respondents indirectly by influencing changes in the planning and development and policy making realms within the provincial administration in South Africa as a whole. The study proposes different approaches towards the utilisation of R&D to influence and shape socio-economic development in the provincial administration and it also proposed an R&D model for planning and development within South Africa's provincial administration.

5.11. SUMMARY OF THE CHAPTER

This chapter discussed the methodologies, data collection methods and data analysis techniques employed as well as the ethical considerations adopted for the study. Due to the nature of the study, the researcher settled for a qualitative method because it was important to get the perceptions and views of the respondents on the subject of enquiry. This offered a lot of information emanating from the deep perception provided by respondents. The researcher provided a rationale for choices in methodologies and different techniques on various aspects of the research process. The researcher also explained why some of the plans that were proposed in the research proposal phase could not be executed in the field as initially planned. The next three chapters focus on the analysis, interpretation and findings of the study.

CHAPTER 6: PRESENTATION, ANALYSIS AND INTERPRETATION OF THE FINDINGS

6.1. INTRODUCTION

This chapter presents the study findings. Among others, the findings relate to the demographics of the respondents, the role of R&D in provincial administration, the effectiveness of the provincial research forum/structures in planning and development in provincial administration/government, the effectiveness of the provincial research fora/structures on R&D in the provincial administration/government, planning approaches in provincial administration, the position and level of provincial administration/government's investment and funding on the R&D, motivating factors for government to invest in R&D, challenges faced by the provincial administration or government with regard to planning and development, and measures to be adopted to enhance the functioning of the provincial administration or government on R&D issues.

The chapter is based on the following themes: planning and development approaches, R&D funding and investment and challenges faced by provincial administration on planning and development. These themes are guided by the following research questions:

- What are the planning and development approaches in provincial administration?
- How does provincial administration tackle challenges faced in provincial planning and development?
- What are determining or motivating factors for R&D investment?
- What R&D model can be developed for South Africa's provincial administration?

6.2. EXPERIENCES AND CHALLENGES DURING DATA COLLECTION

A few challenges arose during the data collection phase. Firstly, some of the sampled participants in the institutions were uninterested, unavailable or kept on postponing the meetings. This delayed progress and at some point the researcher had to request an extension for ethical clearance from the TUT's Faculty of Humanities' Research Ethics Committee (Annexure N). Secondly, the researcher obtained the gate keepers' permission letter from Northwest University (Annexure L) as she had anticipated collecting data from the director of research in Northwest University, but the research office did not show interest in participating and the researcher requested the Office of the Director of School of Government Studies in the

Faculty of Humanities to participate instead, which request was granted. Lastly, the researcher could not get the directors of research in TUT, UJ and WITS to participate. The TUT research director indicated that they could not participate and referred the researcher to another official who was also not keen to participate. The University of Johannesburg granted permission to collect data from the Research and Innovation Director (Please refer to annexure K), however the official did not show any interest in participating The Witwatersrand University did not respond to the request for participation; the same applies to the two research forum members from UJ and the Gauteng City Region Observatory.

Notably, in terms of the research ethical considerations of the study specifically and the research ethics principles generally, a participant should participate voluntarily in the study without being forced or coerced. Therefore, the researcher could not force the research participants to take part in the study. However, the researcher had to come up with mitigating measures so that the research findings were valid, for example by studying documents such as annual reports relating to the institutions' research work. These documents are not classified and are obtainable on public platforms, such as the institution's website. This was done to provide a glimpse of the relations between the sampled institutions and the provincial government on matters pertaining to R&D and development planning between Gauteng Provincial Government and particularly TUT, UJ and WITS as the researcher could not interview them as explained in the preceding paragraph.

6.3. THE DEMOGRAPHICS OF THE RESPONDENTS

This section provides a general picture of the demographic profile of the respondents who were sampled in this study, which are: (i) Officials from offices of the premier in Limpopo, Gauteng and Northwest; (ii) Members of research forums/structures in these provinces and (iii) representatives of the universities of Limpopo (UL), Venda (UNIVEN), Northwest and University of South Africa (UNISA). These demographics are primarily to provide background on the characteristics of respondents who participated in this study.

6.4. CHARACTERISTICS OF THE RESPONDENTS

A total of nine officials of the offices of the premier in Limpopo, Gauteng and Northwest were interviewed. The researcher also interviewed four representatives of these universities and a

total of six members of the research forums/structures in both Limpopo and Northwest provinces. The total number of participants in this study was 19. However, some of the additional data emanating from interviews with the four university representatives will be discussed in Chapter 7.

6.4.1. Age of the respondents

The majority of nine respondents in this study are age 51 and above; these are largely officials who are at senior management positions in their respective institutions, as are the seven respondents between the age of 41 and 50. The remaining three respondents, of whom two are in middle management positions, are aged between 31 and 40.

6.4.2. Gender of the respondents

The sampled respondents comprised six females and 13 males. This is indicative that more males than females occupy positions of influence in the sampled institutions.

6.4.3. Highest qualifications

Nine respondents are in possession of the highest national qualification, level 10, which is a doctoral degree. This number is both from the participants in the sampled offices of the premier, universities and members of the research forums/ structures. Seven respondents have Master's degrees; two participants have Honours degrees and one respondent has a first degree. Generally, the respondents' qualification levels are commensurate with the type of positions they hold in their respective institutions.

6.4.4. Positions of the respondents in their institutions

Eighteen respondents in the study are highly ranked officials in their respective institutions, with 11 of them directors of their units or directorates. Three respondents are deputy directors and the other three hold positions as chief director, executive director and chief research specialist. The remaining two respondents are an assistant director and a research officer respectively**.**

6.4.5. Number of years in the institution

A majority of the respondents, 12 in all, indicated that they have been employed in their respective institutions for at least seven years; four have been in their institutions for 4-6 years, two have been with their institutions for 1-3 years and one respondent has been with their institution for less than a year.

6.4.6. Provinces where the study was conducted

The study was conducted in three provinces of South Africa, namely Limpopo, Gauteng and Northwest provinces. In terms of participants, seven are employed in the Limpopo Province, four are from Gauteng and seven are employed in Northwest province. One respondent indicated that he worked all over the country due to research projects his organization was running across the country; in his response to the question “In which province is your institution?” he responded, “All provinces in SA; we have projects that are running throughout the country”**.**

When working on service delivery as an aspect of the study, the researcher looked at the performance of the three provinces as indicated in the Presidency’s Twenty Year Review (2014) where it is emphasized that Gauteng, Limpopo and Northwest Provinces are all experiencing service delivery problems owing to poor human resources and the inability to spend the allocated budget. The Financial and Fiscal Commission (FFC) revealed that provinces have not been spending the allocated budget fully, especially looking at the social service aspect. For instance, it was reported that Gauteng did not spend about R182 million of the budget and Limpopo failed to spend R176 million. The President’s Review Commission Report (1998) also highlighted the service delivery challenges that these provinces are faced with, some of which are attributed to human resource capacity issues. These provide a picture that provinces are not ensuring that proper planning and development activities are exercised, which is reflected in the poor service delivery experienced at the grassroots level.

Out of interest the researcher looked at the government documents from the Western Cape Province with an aim of checking the performance of the Western Cape Provincial Government. This was motivated by the fact the Western Cape is the only province in South Africa that is governed by a different political party, in this case the Democratic Alliance (DA). The researcher

was curious to learn how the operation and performance of the Western Cape compared with that of other provinces. The documents obtained from the public domain on the internet were the Provincial Growth Strategies for 2014-2019 and 2019-2024. These documents reveal that, like other provinces, the Western Cape is also experiencing socio-economic challenges such as unemployment and sluggish provincial economic growth. The province emphasizes on the need for R&D to solve existing socio-economic challenges, such as a lack of housing provision and that there is a need for research collaborations to tackle challenges they faced. Interestingly, the 2019-2024 Provincial Growth Strategy indicates that the Western Cape Province relied on research when developing the document. The document cites research findings on the existing challenges. For instance, the Strategy indicates what research says about achieving gender equality and improving children's health.

6.4.7. Directorates of the respondents

A high proportion (14) of the respondents are largely from directorates of research, innovation, policy and monitoring and evaluations within selected institutions of the sampled provinces. Three respondents are employed within their strategic planning and planning alignment directorate with only two respondents employed in frontline service delivery and government studies respectively. This confirms that this study sampled only relevant officials who understand the subject of inquiry on R&D for planning and development. It is worth noting that different institutions have used different names for their directorates whose functions are on research, development, planning and development; the essence is that the types of functions these directorates perform are relevant to the phenomenon being studied.

6.5. PRESENTATION OF THE QUALITATIVE FINDINGS OF THE STUDY

Table 8: Propositions from Key Findings

Research questions	Research objectives	Themes	Propositions
What is the role of research and development in provincial planning and development?	To investigate and explore the role of R&D in provincial planning and development	Research and Development	R&D plays a limited role in provincial planning and development. This is due to numerous challenges that directorates are faced with.
What are the planning and development approaches in the Provincial Administration?	To identify planning and development approaches in the Provincial Administration	Planning and development approaches	Directorates in Office of the Premier use different and various planning approaches; their approaches are not uniform and standardized.
How does the Provincial Administration approach planning and development?	To assess planning and development approaches in the Provincial Administration	Planning and development approaches	Primarily, provincial administrations rely on strategic planning sessions, Annual Performance Plans, Theory of Change. They do not necessary use meta-planning as a process to plan about planning.
What are the challenges in provincial planning and development?	To analyse challenges faced by provincial administration in planning and development processes.	Challenges in provincial planning and development	Among many challenges cited, the main ones include lack of financial and human resources for R&D and planning and development initiatives, silo mentality and approaches on planning and development, political interferences and lack of political and administrative

Research questions	Research objectives	Themes	Propositions
			will from key decision makers.
To what extent are provincial governments funding and investing in R&D?	To establish the level of investment and funding on R&D in provincial administration	Research funding and investment	The research funding and investment is intensely very low in Limpopo and North West whereas in Gauteng it is far much better. Improvements need to be made in order to change the R&D landscape in provinces.
What are the determining/motivating factors for R&D investment and funding?	To establish determining/motivating factors of R&D investments and funding	Factors for research funding and investment	At the centre of motivating and determining factors for provinces to invest in R&D, improved service delivery, impactful planning, global competitiveness and innovation came out strongly.
What R&D model can be developed for South Africa's provincial administration?	To develop R&D model for South Africa's provincial administration.	Research and Development model	A workable R&D model for planning and development in provincial administration should put an emphasis on the need to inject financial resources in R&D initiatives, skilled and capable officials, funded research agenda, functional research collaborations and partnerships between government, academia/universities and the private sector.

Table 8 provides a summary of ideas that will be discussed in line with the research questions and themes of the study. The propositions of the study as stipulated in the table are linked to thematic areas that were guided by the research questions.

6.6. AN ANALYSIS OF THE ROLE OF R&D IN PROVINCIAL ADMINISTRATION/GOVERNMENT

This section of the study discusses the role played by R&D within the provincial administration. This discussion is based on the responses gathered from participants of the study.

6.6.1. The role of R&D in provincial administration

In response to a question posed about the role of R&D in the provincial administration, eight respondents who are government officials in Limpopo, Gauteng and Northwest provinces highlighted that R&D ideally plays the role of providing information for planning and development activities in their respective provincial administration and also that R&D should assist decision makers to make informed decisions on matters of public policy. However, only one government official responded that the role of R&D was minimal as there had not been much emphasis on strategic planning in their province. In Limpopo and Northwest there was a minority view that the role of R&D had not yet been evident, especially where issues of strategic planning and development were concerned. However, the overall picture given by the respondents was that R&D had a role to play in providing evidence for planning and development within the provincial administration.

One respondent highlighted that

“Research and development plays a pivotal role in informing public policy’s development and implementation as well as decision making process. Moreover, it is central to innovation, technological advancement and may results in globally competitiveness”. This should be isolated and indeneted and presented in font size 10 as a direct quote which is three lines or more.

Another respondent indicated that R&D assists in the “generation of data to inform planning”. These responses are supported by literature in Chapter two of this study that cites the importance of R&D in socio-economic development of countries across the globe and supports

the notion that countries that are doing well in their economies have put research, development and innovation at the heart of their socio-economic development and economic growth.

Figure: 6.1 depicts a word cloud which demonstrates the words that came out strongly when participants responded to the question posed. According to Ramsden and Bate (2008:01), the term word cloud is defined as a "visual depiction of words". Basically, this means that the more times the word appears within the text that is being analysed, the larger it will appear; therefore the word cloud provides word frequency by the size of the word as it appears below. Figure 6.1 indicates that responses towards the question, "What is the role of R&D in provincial administration?" were centered on the fact that the role of R&D was to inform planning, to assist in developing plans, and to provide data. This then supports the explanation that words that appear larger on the word cloud are those that have been frequently mentioned by respondents in answer to a particular question during the interview.

Figure 6.1: An illustration of a word cloud from Atlas.ti

Source: Researcher's Own Illustration

6.6.2. The role of R&D in respondents' directorates

A higher proportion which is eight respondents indicated that R&D played a minimal role in their respective directorates in the offices of the premier in Gauteng, Limpopo and Northwest. They provided a picture of the role of R&D in their directorates, which included among others the coordination, development and implementation of the research agenda, the coordination of research collaborations with academic and research institutions, conducting and commissioning of research projects, the use of evidence obtained from research findings to develop new plans, the use of research evidence for the assessment and implementation of plans, the provision of

information for service delivery and planning purposes, data that was used for policy formulation and/or review. For instance, one respondent said that the role of R&D in the directorate was the

“Coordination of research collaboration initiatives”, whereas another official said R&D’s role was “to conduct and commission research to support key decision making by top management and political principals….and develop research agenda”.

Another interesting response from an official who worked with frontline service delivery issues was that “it tends provide the necessary insights into conducting and delivering our mandate but also assist in the improvements of our existing means of service delivery”. Another official said this about the role of R&D in their directorate: “Sometimes the directorate relies on the research findings and results to guide different sectors on what needs to be included as part of their plans”. However, only one respondent indicated that in their directorate R&D did not play any strategic role at all.

Perrot (2013) and Chen et al (2019) have demonstrated that governments that have invested in R&D to improve the socio-economic situations in their countries are doing well. This particular section of the findings supports this notion of forging collaborative efforts with various sectors with the aim of achieving government’s mandate of providing quality goods and services to the citizenry, although there may be a need to improve so that the potential for collaboration is realised maximally.

The researcher developed a word cloud from the data analysis tool Atlas.ti’s that illustrated words that came out frequently when the question on the role of R&D in directorates was posed. Examples include words such as coordination, plans, planning, guide, evidence and policy. These are words that have evidently been linked to the role R&D plays in directorates in the selected provinces. The overall picture provided in this sub-section is that R&D has the potential to play a positive role in different strategic directorates in the office of the premier of the coordinating departments in Limpopo, Gauteng and Northwest.

6.7. THE EFFECTIVENESS OF THE PROVINCIAL RESEARCH FORUMS/STRUCTURES IN PLANNING AND DEVELOPMENT IN PROVINCIAL ADMINISTRATION

The question about the effectiveness of the provincial research forum/structure was posed to two sets of respondents—nine government officials in sampled directorates and six research forum members within the selected provinces Of these 15 respondents, 13 claimed that the

research forums/structures in their respective departments were ineffective and had not enjoyed the support of the political and administrative principals. Only one respondent indicated that they had no idea about the effectiveness of the research forum/structures because they had not seen their impact.

When asked about the effectiveness of these structures one participant said:

> Research Forum is functional, however not that effective. The reason being that decisions taken at the forum are not being processed by the highest decision-making forum such as the Provincial EXCO or HOD forum. The forum exists for malicious compliance and it serves more as an information sharing platform. The forum does not have powers to hold any department or municipality accountable for research activities.

The other respondent highlighted the ineffectiveness by saying that, “It is not effective at all in this regard. There is hardly any work of the forum that reaches provincial planning stages”, which was supported by another one saying, “Provincial research forum has limited involvement on planning and development (policy making processes)”. One research forum member added, “The significance of research in planning and development is still lacking”. Another supporting statement about the ineffectiveness of R&D in planning and development came from a member of the research forum who said, “I have not noticed any inputs from research that filtered through to planning.” From the findings it is very evident that the research forums/structures in Limpopo and Northwest have not yielded their intended goals of being impactful towards the achievement of government’s mandate and priorities set in the provincial strategic plans and policies. Ideally, the research forums exist to provide R&D advisory support to provinces; in this case the forums are not living up to the mandate set for their existence. These forums exist online for compliance and operational purposes and not for strategic functions. The Gauteng members responsible for research were not available, hence their views and perceptions could not be recorded.

6.8. AN ANALYSIS ON THE EFFECTIVENESS OF THE PROVINCIAL RESEARCH FORUMS/STRUCTURES ON R&D

It is evident that the established provincial; research forums are not effective on shaping the R&D landscape of the provinces. Out of the combined 15 respondents from government and research forums, 10 highlighted that the forums in their provinces were not effective in including R&D in provincial administration. In their responses some highlighted that the forums were unable to perform their intended tasks for a number of reasons, including political interference,

inadequate secretariat, silo operations by directorates and sector departments, and poor enforcement measures by government, which led to the forums not being able to perform their functions. One respondent indicated that, “Currently it is ineffective, it is dominated by poor attendance by member departments and other stakeholders; poor decision making and implementation thereof; weak secretariat and insufficient research studies undertaken and no implementation of findings”. Another respondent posited that silo mentality seemed to be one of the reasons for the ineffectiveness and elaborated: “Not effective at all. Research is not considered during planning processes. There is no linkage between Research Forum and planning forum”. Another angle brought by one research forum member was the notion of how intra-collaborations between government departments and intersectoral partnerships between government and academia and the private sector could play a role in ensuring that the R&D landscape was improved. A research forum member said, “The forum has been planned to make contribution in management on R&D. Partnerships are there but there are limitations in terms of enforcement of partnership policy implementation. Hence, we will not reap the fruits”. Another respondent cited that one thing that led to the ineffectiveness of these structures was political interference: “According to my personal opinion it is not very active due to various reasons; including political interferences as well as positions that are not filled. There is also too many acting positions which leads to instability within the forum”.

Contrary to these findings, four other respondents highlighted that the forums were indeed working for the R&D aspect of their provinces. For instance, one of the respondents said, “Through partnerships with various partners and structures within the province, there are great strides in ensuring that decision making is informed by research”. The other two respondents indicated that their forums were not doing badly, although improvements were needed. These two respondents are quoted as saying “Satisfactorily, however improvements are required”, and that:

> The provincial research forum is to some extent, effective on research and development in the province…. The province has identified key drivers of the economy in the LDP but little or no research has been conducted on those sectors (mining, agriculture, tourism & manufacturing) to develop indicators that will assist in measuring their extent of contribution to the economy of the province.

However, one respondent felt that they were neutral in their response because they had not seen the impact of the forum in their directorate; hence, they had no idea if the forum was effective or not.

The findings presented in this section reveal a predominant perception that the research forums/structures that have been established in the provinces of Limpopo, Gauteng and Northwest are not effective. This perception relates to the inability of these forums/structures to influence R&D in their province. The ideology of creating these forums/structures is a significant and positive one; however, currently it is not yielding positive results. To confirm this perception, one of the respondents highlighted this about the forum: “It is ideal for the creation of a platform for sharing of best practices and or knowledge. However, there is less evidence on how its sittings have translated into improved provision of research and development in the province”.

6.9. AN ANALYSIS OF PLANNING APPROACHES THAT RESPECTIVE DIRECTORATES ADOPT FOR PLANNING AND DEVELOPMENT WITHIN PROVINCIAL ADMINISTRATION/GOVERNMENT

This section presents findings on the planning approaches adopted by directorates within the office of the premier in the selected provinces. The questions below were posed to nine government officials housed in directorates whose functions include R&D, strategic planning, monitoring and evaluation, service delivery and policy coordination.

6.9.1. Planning approaches directorates adopt to achieve planning and development mandates of the provincial administration/government

Predominant approaches cited by six respondents from different directorates are Theory of Change (ToC), attending strategic planning sessions, drawing annual performance plans (APPs) and operational plans (OPP). One government official highlighted that,

> The directorate forms part of the Departmental Strategic Planning sessions. Upon receipt of the MTSF priorities, the directorate will discuss them and ensure that issues of research are linked with the MTSF, this process will then be discussed at the sub-branch strategic planning sessions which will be consolidated with other directorate for discussion at the branch strategic planning sessions. Once the branch strategic sessions outcomes are consolidated they will then be presented and discussed at the departmental strategic planning sessions. This is the platform where final decisions will be taken regarding important and strategic matters which will form part of the annual plan of the department.

Another participant alluded to the use of APPs: “We have adopted the framework for strategic plans and annual performance plans with emphasis on the outcomes oriented monitoring and evaluation approach”. The other insight gathered during the data collection was the use of the ToC approach, which is a model that emphasizes stakeholder engagement during the planning phase in order to ensure the smooth implementation of government projects and programmes; a respondent is cited as saying this about the approach:

> The directorate uses the Theory of Change Model to approach planning and development. This is a model that was introduced by the DPME and is also used by the Provincial Government. This model has assisted the province to have almost a uniform planning approach across all the sector departments.

A supporting view regarding the adoption of the ToC model by another directorate was that, “The directorate takes mandate from national and implement framework on what should be done. The emphasis is on Theory of Change”.

Three other respondents cited different approaches than those highlighted above, some of which include assessing information through research, monitoring and evaluation processes and using it as a basis for taking strategic decisions. A participant from the research, monitoring and evaluation directorate described the planning approaches that the unit adopted thus: “We assess information collected through the monitoring, research and evaluation process and use this information as a tool for taking managerial action and to improve future interventions through the planning process”. A different approach that was mentioned by one of the respondents was the coordination of the multi-year provincial research agenda, saying that they “coordinate the compilation and adoption of the multi-year research agenda. The research agenda is usually informed by the policy agenda for provincial administration”. The respondent added that they also engaged in “Developing evidence map to aid access to scientific articles and knowledge management system”.

These findings provide a clear picture that indicates that different directorates within the office of the premier use different planning approaches. Basically, there is no single approach that the directorates are expected to adopt for planning and development in the provinces. Although there are dominating approaches such as strategic planning sessions, APPs and ToCs, the general picture showed that no uniform approach was being followed by the directorates for

planning processes or to support directorates that dealt with planning and development in the provincial administration.

6.9.2. Ways through which provincial administration approaches planning and development processes

The planning and development processes that are adopted by selected offices of the premier were explained in detail by the participants. What emerged from this is that different directorates execute these approaches differently. For instance, in Limpopo and North West provinces directorates use different approaches and how these approaches are executed differs from one directorate to another. As stated above, the approaches are not necessarily uniform. The findings revealed that in one province one directorate would apply medium term strategic framework (MTSF) to prioritise their strategic mandate whereas another would rely only on the priorities within provincial strategic plans, such as provincial growth and development strategies (PGDS), the State of the Nation Address (SONA) and the State of the Province Address (SOPA). Of course these strategic documents are linked in the sense that they are all centered on implementing and achieving the strategic mandate of government or the party of the day.

The respondents explained how they undertook the process of planning and development in their respective directorates. For example, one of the respondents said that “Provincial planning development process is informed by MTSF priorities. Provincial priorities are set and developed through strategic planning processes which are informed by MTSF priorities”. Conversely, a respondent from another unit but within the same study area explained the process as follows:

> The unit identifies its own needs and challenges then reviews its performance of the previous year and what the new challenges would inform new approaches, the current or future challenges. This is how we yield a unit plan. The Unit or directorate would then be invited to make an input into departmental plans.

The departmental plans then became the consolidated version of all the plans from various directorates within the department. The units did not follow the same approaches when they designed their new plans. The consolidated plan thus became infused with differently designed plans. These diverse planning methodologies made the output less responsive to the actual socio-economic situation as some may not be evidence based or some were rephrased versions of old plans. This then translated into less focused or responsive services to the Province.

Other directorates cited that their planning was reliant on the National Development Plan 2030, SOPA, SONA and that their macro-economic strategy was finalised in the form of a PGDS. One respondent indicated that

> Planning is guided by the National Development Plan 2030, President's Post Economic Recovery and Reconstruction plan as well as Growing Gauteng Together 2030. Also planning is guided by SOPA at provincial and at national its SONA including Makgotla. Finally, planning is a continuous process conducted through annual performance plans, annual reporting, mid-term reviews and end of term reviews.

One interesting aspect that was revealed is that although these planning process took place, in most cases they did not match the realities of the needs of the citizenry who were supposedly the beneficiaries. One head of a directorate said:

> Branch, provincial and office strategic planning sessions and the planning and development sessions does not match the plans' reality. The reality should be looking at our performance and how to improve better service charters, norms and standards and how to better them and take strategic decisions to speak to APP. There are uninformed discussions in strategic planning due to output scarcity.

In general, these findings indicate that provincial administration approached planning and development by adhering to the legislated planning and development frameworks that have been mentioned.

6.9.3. How provincial R&D activities influence planning and development processes in the provincial administration/government

This question was posed to government officials in the offices of the premier in the three selected provinces with the aim of understanding how R&D activities influenced planning and development processes at a provincial level. This question was directed to nine government officials, of whom six confirmed that research findings did find expression in some of the provincial plans and policies. For instance, three respondents from Gauteng explained that research evidence did influence planning: "Provincial research and development activities influence development and review of public policies, bills and strategies as well as evidence-informed decision making". Another supporting statement from a Gauteng official states that "The results of the research are used in the development of provincial and sector plans including the development of new policies to address what was identified during the research".

However, in Limpopo the picture is different in that only one official indicated that indeed to some extent R&D did influence provincial planning and development processes. He said that “Through SERO (Socio-Economic Review Outlook) that is conducted annually, the provincial administration through Provincial Treasury is able to allocate funds equitably. It also assists in identifying provincial challenges that need immediate, medium- or long-term attention”. Contrary to this, the other two officials from Limpopo held the view that R&D did not necessarily influence planning and development in the province, one of whom indicated that the influence was in fact minimal:

> It has lesser influence in the sense that most units/directorate rarely rely on evidence in the design of their programmes or even check with latest trends. Research and development services also have funding constraints to embark on priority research and development initiatives. The evidence produced by the R&D unit do not constitute a sufficient percentage of what would help the Province plan relevantly.

The other respondent indicated that R&D had no influence in the provincial planning and development. In Northwest one official indicated that R&D did not influence provincial planning whereas one other claimed that R&D did have an influence in that the findings were used for development purposes: “The results of the research are used in the development of provincial and sector plans including the development of new policies to address what was identified during the research”. Although these are contradictory views, in general the findings indicated that there seemed to be an understanding in the provinces that planning and development activities should be evidence-based. There was a need for enforcement and improvement, however, which may include the injection of resources and the use of available structures that were necessary for R&D to maximally influence planning.

Chapter 3 of this study looked at literature reviewed on planning and development in public administration, explaining the significance of using R&D to inform government’s planning and development. This chapter emphasized that the use of evidence in planning has the potential to assist government to provide services in an efficient and effective manner. It therefore becomes critical for these selected provinces to consider improving how they use R&D as a strategic tool for planning and development in order to avoid the risk of developing uniformed programmes and projects that may result in the provision of poor quality services.

6.10. AN ANALYSIS OF THE PROVINCIAL ADMINISTRATION/GOVERNMENT'S INVESTMENT AND FUNDING ON R&D

This section concentrates on the theme of R&D investment and funding. The questions under this theme were posed to nine government officials in the offices of the premier and six research forum members/structures in Northwest, Limpopo and Gauteng provinces. This brings the total number of respondents to 15.

6.10.1. The provincial administration/government's position on R&D investment and funding

The perception of respondents regarding the question 'What is the provincial administration's position on R&D investment and funding?" differed from province to province. Significantly, a high proportion of nine respondents contended that the provincial administration did not invest in and fund R&D. These respondents emphasised that R&D was not regarded as a priority in their provinces, which was one of the reasons behind the lack of investment and funding in provincial R&D activities. Most of these respondents stated that little was being done by provincial governments to ensure that R&D became a priority and not an afterthought in provincial planning and development.

One government official expressed the view that, "Research and Development is not a top priority area for the province. This is evidenced by its inadequate staffing and financial and or material support provided for the service". A supporting view from another government official highlights that:

> There is a desire by the provincial administration to invest in R&D but there is little funding for R&D to proof that. Some departments regard their R&D sections as dumping sites. They just throw in people who seem to be misfits in other sections. Once HODs of departments become reliant on research from the R&D sections, they will deploy people with the requisite skill. The public administration has not reached a point where they make informed decisions based on researched data.

Another interesting view from a research forum member in Northwest is that at some point the province had a high regard towards R&D investment; however, over the years interest had waned, as the member of the form points out:

> There used to be an R&D investment in the past, however it goes with different administrations. There are previous leaders who were previously keen on investing in R&D, at the moment that is

> not the case with current accounting officers… Accounting officers who have an understanding on the significance on R&D activities are needed in the province. At the moment it appears there is no intention to invest and fund R&D.

Other respondents raised similar concerns about government lacking the commitment to invest in R&D. One of the views raised was that:

> At a provincial level I do not see any commitment for investment and funding for R&D. The same applies at the departmental levels.There is minimal investment and funding available for R&D in Limpopo. Initiatives such as the establishment of the Limpopo Provincial Research Hub have been made to provide advice to the provincial government to invest more in R&D but such initiatives have to date not been considered.

Another respondent posited that principals and the executive authority in their province seemed not to have an understanding of what R&D ought to do; hence, R&D was not enjoying the attention given to other key strategic areas. It was worrisome that there was a lack of R&D investment even with a wealth of research evidence supporting how this strategic tool was being used elsewhere in the globe to maximize and accelerate economic growth. The findings indicate that authorities in government do not understand the role of research in provincial planning and development. As one respondent put it:

> R&D is not a priority because we have not crafted what's the role of R&D, we need to have priority or agenda that filters in our plans to inform our planning. The concept of R&D has not taken root in the thinking of people who matter i.e. the key decision makers have not understood what this concept is about. The powers that be become preoccupied with compliance issues and not the process of complying and what informs the end products of the strategies.

A contradictory view to those of the other six respondent was that Gauteng Province was making an effort to invest in R&D. Some of them are quoted as saying that R&D partnerships and the provincial administration's will to inject a significant percentage of the Gross Domestic Product (GDP) into R&D had assisted the province to move in a positive direction as far as R&D investment and planning and development were concerned. One respondent said that "According to Growing Gauteng Together (GGT) 2030, 1.5% of GDP is to be spend on R&D for the Gauteng City Region (GCR) to be skilled and globally competitive". Another view emerged that "Gauteng takes the issue of R&D very serious. To this effect as part of the provincial priorities, the province has a commitment to spend 1.5% of the GDP on R&D to enhance

innovation, artificial intelligence and global competitiveness". A supporting statement from another respondent was that

> In Gauteng, there is great investment and partnerships with relevant research institutions as the Gauteng City Region Observatory (GCRO) which plays an important role in ensuring that the research agenda of the Province is met. GCRO is a partnership between the University of Johannesburg (UJ), the University of the Witwatersrand, Johannesburg (WITS) and the Gauteng Provincial Government (GPG), with local government in Gauteng also represented on the GCRO Board. GCRO receives a core grant from the GPG, and the two universities provide significant in-kind support. While the GCRO is based at the two universities, it is also charged with extending links to all the higher education institutions, as well as knowledge councils, private sector think-tanks, research NGOs and information-exchange and learning-networks operating in the city-region.

The general observation in this section is that although there are positive strides made by some provinces there is still a lot that needs to be done in other provinces on R&D investment and funding. Limpopo and North West Provinces are lagging behind and may need to consider learning from Gauteng how to invest in R&D in their provinces. Schiolars such as Gyekye, et.al. (2012), Pardey, et.al. (2016) and Tsvakirai, et.al (2018) remind us that countries that are globally competitive with impressive economies have relied on R&D investment to grow their economies and improve the lives of their people. Moreover, Perrot et.al. (2017) has highlighted that R&D investment and funding in many countries has been done through R&D grants and subsidies. It may be necessary for provincial administrations to take measures that will ensure that R&D investment and funding is a reality with national government. Where is your theory??

6.10.2. The level of R&D investment in provincial administration/government

in response to the question "What is the level of R&D investment and funding in the provincial administration/government?" all the respondents indicated that the level of R&D investment by their provincial administration was intensely low and that their province could do much to improve on this matter considering that the offices of the premier by their mandate were meant to provide a coordinating role in provinces, part of which included ensuring that a conducive environment was created for R&D activities to thrive for the betterment of the lives of the people and to ensure economic growth.

Foremost among the views of the respondents was that R&D functions did not get adequate allocations for both financial and human resources. One respondent is cited highlighting that:

> For the Office of the Premier which leads and coordinates research in the Province. The size of the allocation for the Research Directorate during 2021/2022 financial year is R2, 761,000.00. This amount is inclusive of compensation for employees in the directorate which takes and amount of R2, 656,000.00. The difference of R105, 000.00 is for goods and services like stationaries etc. There is no single allocation for research studies in this budget. It furthers shows the ineffectiveness in research influencing any planning in the province. This is a similar trend in many other departments in the provincial administration".

This poor injection of financial and human resources was believed to be due to a lack of knowledge on the role of R&D within provincial planning and development. To cement this view a respondent submitted that "there is no investment on R&D because there is no strategic ways on what R&D is expected to do, because the principals do not know what it is expected of R&D units hence there is no injection of human and financial resources". Another interesting view gathered during interviews was that pronouncements were made by political heads and executive authorities on how allocations of R&D should be channeled; however, such pronouncements were not implemented. For example, one of the respondents said: "For instance, in 2004 the province resolved that at least 1% of the budget should be set aside for training and research purposes. However, it should be noted that over the years the resolution has not been implemented as was initially agreed". Evidence from the data strongly indicates that R&D investment and funding is a very challenging aspect in provinces, which may result in provincial administration performing poorly in achieving their mandate of providing proper service to the people.

6.10.3. Motivating factors for R&D investment in provincial administration

This section looks at views and perceptions of the respondents on what should be motivating factors to guide provincial administration/government to fund and invest in R&D. The question, "In your own understanding, what should be motivating factors for provincial administration to invest in R&D?" was posed to respondents. Many factors were highlighted, with a high proportion of respondents emphasising the following focus areas that should guide the provincial administration when investing in R&D:

- Improved service delivery;

- Impactful planning and development to address key challenges;
- Research to support provincial strategic plans;
- Sound and informed decision making;
- Reduction of complaints from communities;
- Socio-economic needs of the province;
- Evidence based reporting;
- New knowledge;
- Synchronization of data, which will result in a pool of data sources;
- Innovation,
- Global competitiveness;
- Artificial intelligence

These responses reflect what should motivate the provincial administration to improve the status quo and invest far more in R&D than what they are doing currently. As evidence has highlighted in the preceding sections, respondents were not convinced that provincial administrations were properly committed to ensuring that R&D is prioritized. More importantly, these findings are blatantly indicative of the negative state of affairs on the R&D investments in the provinces. Although the province of Gauteng is doing better than Limpopo and North West, much more still needs to be done going forward. Gauteng remains a great example for the selected provinces on how they can begin to shape their R&D landscape. A respondent from Gauteng Province supported what other respondents were saying, indicating that one of the motivating factors for provincial administrations to drive the agenda of R&D investment should be “To become globally competitive, skills development, innovative solutions, employment creation and being well positioned to partake in global value chains”. This thinking is linked to exactly what the literature advances about the significance of R&D investment in boosting the competitiveness of economies in most big economies (Gyekye, et.al, 2012; Pardey, et.al, 2016; Tsvakirai, et.al, 2018).

6.11. AN ANALYSIS OF CHALLENGES FACED BY THE PROVINCIAL ADMINISTRATION/GOVERNMENT WITH REGARD TO PLANNING AND DEVELOPMENT

All 15 respondents from government and research forums cited a number of challenges that provincial administrations were faced with in planning and development activities. A high

proportion of them indicated that among the challenges, some of the leading issues were linked to the following:

- Human and financial constraints in terms of lack or poor funding for research, planning and development activities; unskilled human resources; insufficient human resources;
- Silo approaches on how research, planning and development issues were handled;
- A poor understanding of what research was expected to do in order to make planning and development easier;
- No or poor utilization of evidence for planning and development. the respondents highlighted that planning and development rarely relied on research. Hence, in most cases officials who were charged with the responsibility to coordinate research rarely attended planning forums. In cases where “evidence” was utilized it was not credible and the data was sometimes outdated. This eventually led to poor implementation of provincial plans.
- Inadequate utilization of expertise in academic and research institutions was another challenge linked to the provincial administration’s inability to capitalize on the partnerships it had with academic and research institutions;
- Less linkage or collaboration between government and the private sector for R&D investment. The prospects of partnering with existing multinational corporations and domestic corporations for research and development purpose was not being sufficiently explored.
- Political interference resulting in political appointments in critical positions that required specialized technical expertise. This practice bred a cohort of unskilled and unqualified officials.

The above list is corroborated by quotations from various respondents who were interviewed about the challenges facing provincial administration on planning and development issues. One respondent listed the following challenges that the Limpopo provincial administration faced:

- The structure of government encouraged silo approaches; for example there was no integration between what research and development units did and what integrated planning or strategic planning institutions did.
- The conception of research and development as an enabler for investment and economic growth was underrated or understated by key decision makers and high ranking

administrators in government mainly because they had not yet understood the role of R&D in government and how this strategic tool could be used to iaccelerate growth and development and influence public policy.

- The institutional arrangement for the provision of research and development services was not adequately responsive to the needs of the Province.
- Inadequate utilisation of academic and research institutions or skilled professionals.
- Fewer private sector linkages and less investment.

Another respondent from Limpopo corroborated this by saying:

> The challenge of understanding what's operational and what's strategic, until we understand the difference then government will continue to plan in mediocrity. Also, we must differentiate between public administration and politics. Lastly, get skilled and knowledgeable people to lead planning and development.

One respondent from Gauteng highlighted this as some of the challenges they were facing: "Lack of credible evidence-based planning, poor investment in research and innovation capabilities and finally, budgeting not informed by planning (arbitrary budgets cuts by treasury)". In addition, another respondent was quoted saying,

> There are limited resources (capacity and financial) on the area of planning and development. Furthermore, the change in the political leadership at municipalities within the province often requires that the plans that were already approved be revisited which then delays the implementation in some instances.

Challenges facing Northwest province are not very different to those facing the other two provinces. The respondents from Northwest brought an interesting angle to this issue by mentioning the political interferences and slow investment in the province; one respondent mentioned that "Lack of apposite zeal and interest to really implement plans that would better the livelihoods of the masses. Also, there are too many political appointments in critical positions which require specialized technical expertise". This respondent added that:

> There are few resources to cater for all competing demands and needs. Investments are too slow and weak to generate enough economic growth momentum to deliver on the PGDS targets and escape the poverty trap. Most of the interventions require further investigation and research before appropriate policy could be announced and plans developed". These responses have made it clear that provinces are faced with myriad of challenges on issues pertaining

planning and development and this is a result of not putting R&D at the heart of planning and development initiatives.

6.12. AN ANALYSIS ON MEASURES TO BE ADOPTED TO ENHANCE THE FUNCTIONING OF THE PROVINCIAL ADMINISTRATION/GOVERNMENT ON R&D ISSUES

The respondents were asked to comment on anything they thought might assist their provincial administration/government to enhance R&D. The responses were centered on the following key issues:

- Research collaborations and partnerships (through MOUs/MOAs) between government, academia, research institutions and the private sector as one of the most important tools to enhance government's functions;
- Provincial research hubs established and implemented in collaboration with universities';
- Links between offices of the premier and sector departments to avoid silo approaches. This was important because the offices of the premier played a coordinating role and it was important that they knew and understoond what sector departments did and, similarly, sector departments must know what was expected of them by the offices of the premier;
- Funding support and a workable funding model for R&D functions within provinces. Government needed to ensure that there was funding support and a workable funding model for R&D functions within provinces. This could be done through partnerships with the private sector, academia and civil society. The private sector in particular should be central and government should provide a proper policy landscape that would attract investors for R&D in provinces;
- Coordination units established in provinces to oversee R&D expenditure and its impact, done when provinces provided budget and funding for R&D functions.
- The appointment of qualified officials. Skilled officials would provide much needed direction on how to forge partnerships and how to integrate strategic functions in provincial governments. Qualified officials should be appointed in both senior management and middle management levels;
- Critical skills such as research, strategic management, communication, development and planning, policy making and analysis, financial and more;

- A research agenda that was shared with universities to encourage postgraduate students to research on identified themes; and
- A funded provincial research agenda that was implemented by sector departments.

In their response to the question on measures to be adopted, a government official from Limpopo province highlighted this:

> The province should extensively engage and discuss the implementation of Research collaboration MOU, and decide if it's worth it or not to have such initiatives. If this initiatives are seriously considered and implemented, it will strategically change the role of R&D in the province. There is also need to establish the provincial research hub in collaboration with research institutions and institutions of higher learning. Priority should be given to institutions that reside within the Province. The province should further invest more into R&D in terms of human, financial and technical resources. The research forum should be given a mandate and hold departments and municipalities accountable for research activities".

Another official supported this:

> Province need to consider the following: link between the research function of the office of the premier and the sector departments, this should also manifest itself in the alignment of roles and responsibilities; review of funding or support model for research and development services; and establishing a structure for the concentration of relevant research and development skills and initiatives from academic and public sector in the Province.

Interestingly, a respondent from Gauteng also highlighted the importance of research collaboration between government and the academic and research institutions, saying:

> There should be a coordination unit to oversee R&D expenditure and impact. Research councils, NRF and innovation hubs must work collaboratively with provincial administration on issues of R&D. Longitudinal versus short-term research goals must be mediated to ensure that some phenomenon is observed over time.

What is of critical importance in this response is the issue of establishing units in provinces or using the existing ones in the National Department of Science and Innovation to be responsible for coordinating research expenditure in provinces and its impact. However, this can only be relevant in cases wherein there is R&D funding and investment within provinces. A respondent from Northwest Province suggested that the office of the premier should use leverage on its strategic position to make it easier for R&D investment to take place:

> The housing of the research structure in the OtP, it is placed strategically therefore the OtP Chief Director must leverage on this important strategic position and make sure that the structure is used to its full potential. This is a very important position to market and elevate the important of research and development.

This response is corroborated by one response in Limpopo and another in Northwest saying, respectively: “Office of the Premier as a centre of governance within provincial administration should start embracing the R&D concept and provide an increased advocacy for R&D” and “Educate senior management about the role and function of research so that they can enforce and oversee implementation of research findings and innovation for planning initiatives”. All these measures are critical to the advancement of R&D in provincial administration and if well-articulated and implemented they have the potential to change the status quo and improve planning and development.

6.13. ANALYSIS OF THE ROLE PLAYED BY PROVINCIAL RESEARCH FORUMS/STRUCTURES IN THE PROVINCIAL ADMINISTRATION

This section concentrates on the role played by provincial research forum/structures in the provincial administration. Members of the research forum/structures from Northwest and Limpopo provinces were interviewed (Gauteng research forum members could not be interviewed, as mentioned in Chapter 5: research methodology). A total of six research forum members were interviewed with the aim of probing the role played by research forums/structures in achieving the mandates of provincial administrations.

6.13.1. The role of provincial research forum/structures on R&D in the provincial administration/government

The perceptions of the respondents of the role of research forum/structures on R&D was that it played an advisory role for government. The general view was that research forum/structures were structures that brought together multi-sectoral officials to discuss issues pertaining to R&D. One respondent indicated that the role of the research forum was to “bring together academic institutions, researchers and government officials within the province to discuss issues pertaining research and development”. The other respondent said that “The forum conveys an overview of research, highlighting contemporary debates. Experts are chosen from various institutions and are invited to discuss issues that need solutions and provide advice on how to

tackle the issues". Additionally, the research forum/structure "provides government with technical guidance on R&D activities in the province". Another addition to this general view was that the forum also played a dissemination role in the sense that groundbreaking research that had been conducted in the province was shared with a wider research community during research forum meetings. One of the respondents indicated that "the research forum develops a database for research and evaluation work for provincial administration, then have a forum meeting to discuss progress of the research and evaluation studies as per the attached research and evaluation agenda". A corroborating view from another respondent was that:

> The research forum/structure is also responsible for the coordination of R&D between departments and Office of the Premier and also finalise the provincial research agenda. Once research studies that are part of the research agenda are finalized the forum assists in the dissemination of such research results.

The findings in this sub-section indicate that the research forum/structures play an operational rather than a strategic role on how R&D can be used as a strategic tool for planning and development. Research forums in the provinces should be made to drive strategic agendas and provide strategic guidance that will be impactful for the province. As things stand it appears that these forums/structures are merely existing for the sake of compliance.

6.13.2. The role of research forums/structures on planning and development in the provincial administration

A high proportion of research forum members interviewed in this study indicated that the research forum does not have a role to play in planning and development in their provinces. One interesting response was this:

> Ideally, the provincial research forum is supposed to ensure that any research conducted in the province finds resonance in the strategic plan of the province and ensure that the data as the throughput of research conducted should be relevant since unreliable data could result in serious distorted analytical and policy conclusions. However, the planning and development section of the provincial administration does not form part of the Provincial Research Forum and if they do, then they do not regularly attend the forum meetings. This renders the forum ineffective on planning and development. Whatever decisions taken in the forum should be beneficial to the planning and development section. The economic value of a provincial development plan depends to a great extent on the quality and reliability of the research data on which it is based.

> Decisions taken by planning forum which are informed by research can easily be cascaded to municipalities".

Two other respondents shared the same sentiments:

> None at all, research forum should be actively participating in planning processes and strategic planning sessions and it is not the case. At this point, it is as if the planning is hardly informed by evidence, one asks the question as to what informs the planning targets then".

The other one concurred: "The provincial research forum has no role in planning and development in the provincial administration. The forum focuses on operational research activities carried out by provincial administration."

The findings give a worrisome picture as there is apparently no relationship between research forums/structures and planning and development activities in these selected provinces. There seems to be no interconnection between these two strategic areas, which are supposed to be interlinked and informing each other's function. For instance R&D should be informing planning and development in provinces and some of the planning and development initiatives should be informing new research trends and imperatives that can be explored and researched to inform future planning. The mismatch displayed by these findings is disheartening as it suggests that the planning landscape in provincial administrations is either uninformed by evidence or ill-informed by unreliable data.

6.13.3. How provincial research forums/structures influence planning and development in provincial administration/government

This sub-section focuses on the six research forum members in the selected provinces who participated in this exercise. The idea behind this question was to unearth how the established research forums influence provincial planning and development. Surprisingly, all six respondents indicated that the research forums/structures do not have an influence on provincial planning and development activities. In fact, it would appear that they mainly exist for compliance purposes rather than to be impactful. There seems to be a disjuncture between what the research forums are doing and what the planning and development sections and their forums are doing, which indicates a silo mentality of some sort. In confirming this, one research forum member expressed the strong view that:

> The provincial research forum (PRF) can have a huge influence of planning and development. However, the planning and development section should stop seeing PRF as an academic

> exercise but as an important structure that will enhance planning. Very often than not, data is presented in a fragmented manner in planning documents, which is an indication that the planning section does not understand the complementary role the PRF plays. The PRF provides researched information which should be used for the purpose of measuring planning. The non-use of research data leads to poor problem identification, and poor policy analysis and design.

Two of the other respondents see the research forum in their province as a toothless structure: “The forum lacks capacity to influence planning and development issues” and “My opinion is that there is no influence as the Department of Planning, Monitoring and Evaluation has some kind of monopoly in this area”. What was revealed was that the forums did not sit on a regular basis, which makes it problematic for the structure to have any tangible influence and for research uptake to occur. One respondent said that “It is difficult to measure influence because the forum happens once or twice per year. Even when the forum takes place there is no serious engagement hence it becomes a challenge to make influence at provincial level”.

From these findings it is evident that established forum/structures in these selected provinces are failing to perform their expected role. The dominant view from the respondents points to the inability of government to utilize these structures as one of the key strategic mechanisms that can shape the planning and development landscape with the aim of creating a culture of using research for strategic planning. The findings also reveal that some of the hindering factors for the forums to succeed is the silo approach or mentality by strategic directorates within the offices of the premier as well as a lack of support from the National Department of Planning, Monitoring and Evaluation. An interesting element that emerged from these findings also points to researchers or academics not having access to policymakers or the executives of the provinces where research findings can be presented for research uptake purposes; most members who sit in the research forums are officials who do not have powers to influence decisions at top management and on executive management platforms. Cherney et al (2012) posits that most researchers have difficulty in disseminating research to non-academic sectors; hence, research collaborations are important. These collaborations are significant both in the undertaking of research and in the research uptake that follows (Brew, et al., 2016; Cattaneo, et al., 2019).

6.13.4. The involvement of research forum/structure in the planning and development of the provincial administration/government

According to the responses, the involvement of research forums/structures in planning and development initiatives is extremely low, amounting to little more than pure tokenism. As one respondent puts it:

> The provincial research forum sends representatives in the planning and development forum; however, their involvement is just tokenism. Planning and development regards the planning forum as their territory and it becomes business as usual in their meetings. In spite of PRF representative raising a point which is informed by research, the meeting may not reject the point but will simply continue with their business. PRF is involved in planning and development but not to the extent that is desirable.

A similar view, which confirms the general perception that the forums' involvement in their province is intensely low, is that:

> The forum is not infiltrating the ground as it should, there is a need to get the right people to do the right job. The structure is not actively or effectively participating in the planning and strategic sessions. Other directorates would be there but the research directorate in the OtP would not be there to attend the planning and strategic session. Research is being highly downplayed and overlooked.

Another research forum member corroborates what other respondents have indicated, saying that, "Most planning is done without members of the research forum. Plans are discussed with forum members only when the forum sits, hence there is lack of adequate involvement and input from members". These findings are a reflection of the realities that provinces are faced with about how underrated R&D is. These forum members illustrated the poor state of the R&D landscape in provinces and the disjuncture between R&D and planning and development in provincial administration. All the research forum members stated their dissatisfaction that R&D issues are receiving less attention than other strategic issues in the provinces of Limpopo and Gauteng. This clearly shows that provinces have not yet thoroughly comprehended the significance of R&D in socio-economic growth and development.

6.14. SUMMARY OF CHAPTER

Although the study was conducted in three different provinces, there are significant similarities in the experiences of the respondents. The predominant view was that R&D did not inform

planning and development at the level that it should. R&D had not received the attention it deserved, hence human resource, budgetary and financial allocations to R&D in these provinces were very low. These low allocations had become detrimental to achieving socio-economic development as enshrined in provincial strategic plans and policy documents. As unearthed by the findings of this study, the hindrances to government's efforts towards impactful planning and development were a lack of political will, leadership and commitment. The findings illustrate attempts by Gauteng Province to invest in R&D as a strategic tool for socio-economic planning and development in that the province had plans to inject about 1.5% of the GDP on R&D. However; in Limpopo and North West Provinces a lot of changes were needed as they were lagging behind. In fact, Limpopo and North West provinces ought to learn from Gauteng Province. Although Gauteng province was making strides it needed to improve as well.

CHAPTER 7: PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS: PERCEPTIONS OF UNIVERSITIES ON R&D AND PLANNING AND DEVELOPMENT WITHIN PROVINCIAL ADMNINISTRATION

7.1. INTRODUCTION

This chapter focuses on the role played by universities in provincial administration, the relationship between universities and the provincial administration, the effectiveness of the relationship between the universities and provincial administration, the views of the universities about the level of R&D investment and funding by the provincial administration/government, motivating factors for provincial administration to invest and fund R&D and challenges encountered by universities when working with the provincial administration. The section looks at the four sampled universities, namely the universities of Limpopo (UL), Venda (UNIVEN), South Africa (UNISA) and North West (NWU). In these four universities the target was senior management officials, specifically the directors of research or any other delegated personnel at the level of senior management. This part of the study focuses on four respondents from these universities, which means one respondent per university, who from time to time work with provincial governments in Limpopo, Gauteng and North West provinces. The characteristics of the respondents' demographics has already been discussed in the preceding section under item 6.3.

This chapter presents the findings about the role of universities in R&D, planning and development within the provincial administration as well as the relationships the provincial administrations in Limpopo, Gauteng and Northwest have forged with universities in their provinces. The findings on the views of universities on R&D investment and funding are also presented as well as the challenges the universities are faced with in collaborating with provincial administrations.

7.2. AN ANALYSIS ON THE ROLE OF THE UNIVERSITY IN PLANNING AND DEVELOPMENT IN THE PROVINCIAL ADMINISTRATION/GOVERNMENT.

This section provides findings on the role played by universities in planning and development in provincial administrations. The views and perceptions of the university representatives are presented below. The respondents from two universities in Limpopo said that their universities do have some role to play in the provincial administration, but questioned the level and extent

of their role in planning and development: “The university sits in numerous committees in the province and this has enabled us to direct knowledge generation on issues around economic expansion, policy issues and human resources matters. The other respondent said this about their role in planning and development: “We provide expert knowledge which can be harnessed by the province, district and local municipalities. We have maintained a relationship with the province.”

However, their counterparts in two universities in North West and Gauteng held a different view about their role in their provinces, saying that their universities did not necessarily play any role in planning and development in the provincial administration. The one representative said that “The University does not necessarily play a role in this regard. What the government do is that once they finalize their strategic plans they then communicate them to the university,” and the other respondent said, “The University does not directly play any role in the planning agenda of the province as such. However, their academics do participate in the structures such as NDP advisory structures for government.”

These findings give the picture that Limpopo has made strides in involving the university in playing a role in planning and development issues of the provinces, including sitting in advisory committees. However, according to the respondents from Northwest and Gauteng there may be a need to involve the university more, especially in Northwest, which is the only university in that province. It is a different issue with Gauteng, which has many universities resident in the province, although the one that was interviewed (UNISA) did not actively participate in the planning and development of the province. This lack of involvement of key strategic stakeholders such as universities can be an indication of some of the factors that hinder achieving the targets set out in the macro-policies and strategic plans of the province. Unfortunately, as mentioned earlier, other sampled universities, such as the University of Johannesburg (UJ) and the University of the Witwatersrand (WITS), did not participate in the study. Although these two universities did not show an interest in participating in the study, according to respondents in the previous chapter they are apparently very active in the planning and development of the Gauteng City Region (GCR).However, the researcher reviewed the secondary literature in the form of reports from these institutions to get an idea of their involvement in the Government’s planning and development. For instance, in Gauteng Province there is a research observatory that is a collaboration between UJ, WITS and the Provincial

Government. This observatory drives the research agenda of the province and informs provincial planning and development. According to the GCRO annual reports, one of the milestones of the observatory includes the launching of results from the research project entitled "the fifth quality of life survey 2017/2018". This provides major support to the Gauteng Provincial Government's end of term reviews and to its response to the Covid-19 pandemic in producing studies on the impact of the pandemic (GCRO Annual Report, 2018/19; GCRO Annual Report, 2020/21).

7.3. AN ANALYSIS ON THE ROLE OF THE UNIVERSITY IN RESEARCH AND DEVELOPMENT (R&D) IN THE PROVINCIAL ADMINISTRATION/GOVERNMENT

A question was posed about the role of the university on R&D issues in the provincial administration and all the four universities indicated that they do play roles in R&D matters and thus cited their different roles in their respective provinces. One of the respondents said that their university, which is located in the Limpopo Province, "generates knowledge and disseminate it and also promote commercialization of research and research products". He also added that his university "plays a deep role in R&D and sits in various research committees and the research forum. Also, we keep in mind the provincial research focus and niche areas and provincial targets and assist the students to focus on them for meaningful research to the province". Similar to the highlighted issues the NWU also says that "The University has MOU with the province, it is a 5 year MOU and it is renewable. It covers issues that support government plans such as Local Economic Development (LED) and human settlements". A respondent from UNISA said of their role on R&D matters in the province:

> UNISA is a national university, it has a footprint in all provinces. It deals with matters at national and provincial levels. Provincially, UNISA deals with City of Tshwane and Gauteng government. Eight (colleges, two schools and 10 units in the university, they work directly with provincial governments. The approach is not having centralized collaborations and partnerships with stakeholders, units have MOUs and MOAs with governments. On R&D, the university and provincial government enter into an agreement on specific needs by government and the university conduct research and development projects for government. The technological transfer is also a matter of interest for UNISA. Innovation competitions etc. takes ideas and concepts for research within the government".

These are great strides made by the provinces and should be commended, mainly because the involvement of universities in governments can unlock the potential for governments to perform

better. These inter-sectoral collaborations are necessary for promoting impactful and purposeful R&D for provincial administration; the Triple Helix Model suggests that collaborations are important for growth and development as well as for building a knowledge-based economy (Etzkowitz & Leydesdorff, 1995; Leydesdorff &Zawdie, 2010). This resonates well with Chapter 2 of the literature review, specifically on inter-sectoral collaborations, which emphasizes that various sectors have an important role to play in solving societal challenges through R&D (Thirtle et al., 1998; Gyekye et al., 2012 and Tsvakirai et al., 2018).

7.4. THE RELATIONSHIP BETWEEN THE UNIVERSITY AND PROVINCIAL ADMINISTRATION/GOVERNMENT

According to Gyekye et al. (2012) “research and innovation has been acknowledged as critical factors for fueling long-term sustainable economic growth and, concomitantly, employment creation and poverty alleviation in developed and developing economies”. This suggests that the success of government reaching and achieving an impactful R&D in provincial administration lies in building solid and mutually beneficial relationships between government and universities mainly because R, D&I cannot be separated from academia because it is the very business of academics institution to do R&D.

These relationships or partnerships can be made to be both formal and informal. When the question on the relationship between government and universities was posed, all the four university representatives indicated that they had cordial relationships, with some saying they had solid relationships with the provincial administrations in their respective provinces. A remark made by one of the respondents was that,

> The relationship comes back a long way and it is cordial in various levels. University has layers of leaderships and relationships are built mutually with the executive of the government. Regularly, MEC interacts with the universities and vice versa. For instance, the MEC of health has been a regular on health issues, e.g. newest degree in medical school in the university. Strategic partnerships are in existence as well, the relationship between directorate of research in the university and the research unit in the Office of the Premier is another good example. We have a good partnerships to implementation of research forum as well as ethical and research committee and also keeping record of research taking place in government and university.

Additionally, a respondent from the North West University remarked about the cordial relationship they have with their provincial administration by highlighting that,

> The relationship is cordial. There are no tensions. There are areas that are not very hostile, and we work together on number of areas. However, it is not really solid relations as it should as it doesn't have targets of national and provincial priorities. Because of not having a very tight strategic relationship then it becomes unmeasurable.

The respondent from UNISA also indicated that the university had memorandums of understanding (MOUs) and memorandums of agreement (MOAs) with the provincial administration, saying that "The University has the relationship with government. Through MOUs and MOAs to work together on different issues. There are also MOAs on innovation transfer projects and other seven research projects".

These formalized partnerships are critical for achieving the mandate of the provinces, but only if they are explored to their full potential by all involved parties. The partnerships have the potential to ensure that the R&D and planning and development initiatives in provinces thrive. More importantly, these partnerships need to be nurtured with important resources, both financial and human, so that they yield positive deliverables and that the fruits of such partnerships and relationships become tangible. These partnerships and collaborations are significant for driving a developmental agenda. According to Brundenius, Lundvall, and Sutz (2009) and Cattaneo et al, (2019), research partnerships are important in nation building programmes and initiatives by playing critical roles in the socio-economic development of nations, regions, cities and localities in collaboration with states. Hence, these partnerships and relationships forged by these sampled provinces with the universities are very important in the shaping of the R&D and planning and development landscape of provinces.

7.6. THE BASIS FOR FORMATIONS OF RELATIONSHIPS BETWEEN UNIVERSITIES AND PROVINCIAL ADMINISTRATION

This is essentially centered on what the foundation of such relationships is. The respondents highlighted that the basis was essentially on the mutual needs of the partners. A needs analysis resulted in the parties agreeing to enter into partnerships. All the respondents indicated that MOUs and MOAs governed their relationships with the provincial administrations. One of the respondents indicated this about the basis for the relationship to exist between his university and government: "Needs analysis exercises which the MOU emanated from formed the basis for partnerships". Another response was that, "The MOU and collaboration efforts such as MOAs. When there's budget the partners would often match it against the MOU and MOAs".

These findings corroborate well with what literature is saying about the significance of entering into inter-sectoral research collaborations. According to Hwang and Moon (2009) and Zulu (2017), a research community should be anchored on its collaborative efforts, collaborative networks, inter-organisational networks and continuous striving for partnership creations with the aim of transforming society. This notion that collaborations should be beneficial to all involved parties but even more importantly to the citizenry and the general public is once more emphasized, mainly because mutual beneficiation ties collaborators together and for government and universities to enter into collaboration for the sake of improving the lives of the people is significant. However, all these partnerships must be nurtured for the sake of the beneficiaries, hence resource allocation is critical in R&D partnerships and collaborations.

From the empirical data and literature reviewed, the researcher deduces that research collaborations and partnerships should be anchored in mutual beneficiation and issues of commonality concerning socio-economic development in provinces. These collaborations should be driven by the partners' desire to improve and transform the lives of the people.

7.7. THE EFFECTIVENESS OF THE RELATIONSHIP BETWEEN THE UNIVERSITY AND PROVINCIAL ADMINISTRATION/GOVERNMENT

The predominant view among the respondents was that the relationship needed improvement although there were some pockets of effectiveness. The respondents from the two universities in Limpopo Province said that the relationship was somewhat effective. In his response one representative said, "It is 60% effective. There's room for improvement. And need for financial resources as well particularly from government's side," and his counterpart said, "It is effective in the sense that, over the years there is a lot of easy seamless ways of accessing research fields/sites and information from government". However, the UNISA representative had a different view, saying that,

> The relationship is not as effective as it can be. This is due to institutional arrangements in government and university because relationship is mostly driven by individuals, sometimes when individuals leave the institutions then the relationship suffers. University does not necessarily have a central point that manages such relationship, it is an added task to different units/directorate".

The point raised by UNISA about individualizing partnerships is of great interest because it is something that may not always be openly discussed between partners and as a result may be

a stumbling block for the success of the relationship. This challenge may be due to the lack of policy or its poor enforcement, especially in cases wherein the relationship and partnerships were not centralized in institutions. The North West University highlighted that it was difficult to measure the effectiveness of the relationship because the MOU with provincial administration was fairly new: “There is clear outline plan for interventions. It is still a start, the MOU is its first 5 year cycle so it is still early”.

These findings resonate with the perspectives of respondents from the offices of the premier in Limpopo, Gauteng and North West Provinces as well as those from the research forums in the selected provinces on the ineffectiveness of R&D and planning and development in the provincial administration A contributing factor to this ineffectiveness may be the limitation on resource allocation for a seamless implementation of the partnerships and for collaborations to be impactful towards government’s developmental agenda and mandate.

7.8. BENEFITS UNIVERSITIES GET FROM RELATIONSHIPS WITH THE PROVINCIAL ADMINISTRATION

On this question the university representatives voiced different perspectives. The researcher sought to understand if the universities considered the relationship or partnership to be beneficial or not. The evidence suggests that there was some benefit that came with the relationship. One of the respondents viewed the relationship as beneficial as it linked the university with other potential funders. The respondent said that,

> It is beneficial in a sense that the university is able to access platforms and relevant research communities through the research forum, this gives an opportunity to interact with stakeholders e.g. national government such as the presidency, DSI/DST etc. to address the universities on other platforms to ensure universities get funding and donors and opportunities to be on other strategic initiatives. Also, the partnership has served as a neutral ground for other universities in Limpopo e.g. UNISA, TUT and UNIVEN to come together under one umbrella and not be competitive. This has resulted in these institutions having to easily collaborate with each other and see the relationship with government as an opportunity.

To corroborate this view, a representative from the North West University said that:

> The benefits are there as some activities are currently going on such as projects on LED, human settlements. Any activity that happens at the local level benefits the university on teaching,

> learning and research and community engagement because it fits into the university research agenda one way or the other. Interactions with the government will yield benefits going forward.

The representative from UNISA also elaborated on how the university was benefitting from the relationship with government. However, his view was that what the university had managed to achieve through the partnerships was not necessarily benefits but the responsibility of what a university ought to do in communities; he elaborated that, “It is not necessarily the benefit but the responsibility of university to assist government and its citizenry. It justifies the existence of the university. The relationship has also assisted the university to have access to data and research sites in the province.”

The views above that there are benefits from the existing partnerships with government were met with an opposing view emanating from counterparts in other universities, namely that the existing relationships or partnerships did not yield tangible results: even though they seemed to be working at times; the tangibility of the relationship was not highly evident or substantial. This view was expressed by a respondent from UNIVEN:

> Currently, there are no real tangible benefits, even though the MOU is being facilitated but there’s no tangibility. Much more needs to be done from government’s side. Maybe incentives for staff to register for courses to build capacity in the province or government prioritize the local universities in the province for research commissioning and contractual research works.

It should be noted that the views raised by these four different universities depended on individual experiences of each university with their provincial government, although to some extent there may be similar and relatable experiences from one institution to another. The picture provided by these findings is that even though the relationships between the universities and provincial administrations were not perfect, the intention to have a workable environment was nevertheless there. It remained evident that there was still more work to be done to ensure that the partnerships reached a desired level of mutual benefit as highlighted in Chapter 2, section 2.4.

7.9. THE LEVEL OF R&D INVESTMENT AND FUNDING BY THE PROVINCIAL ADMINISTRATIONS/GOVERNMENTS

. Notably, the representatives of all four universities indicated that the level of R&D investment by the provincial administration was low. In their opinion this was one area where provincial

administrators needed to inject their energies if the provinces were serious about the use of evidence for planning, development and policy making. Their views resonated with the views of the government officials and research forums, as presented in Chapter 6 of the study.

One of the respondent's view was that:

> The level of R&D investment and funding is not satisfactory. But the R&D funding is driven through DST/DSI. If there was a presence in provinces it would be helpful and increase the presence of funding for government and not necessarily university. Make available grants for research needs of the province, to allow growth in research and development in the province. This is something that cannot necessarily be made.

Another of the respondents corroborated this view and indicated that the government was not doing their part in R&D investment whereas his university was really investing in R&D. As he said, "The University is really investing on R&D but government is not doing anything to invest in research". Another respondent said:

> There is no substantial consideration for research investment. There is little focus on research in terms of mutually beneficial research collaboration. The university and government may need to focus on this important issue in order to use evidence to inform the government's planning in medium to long-term.

One of the respondents questioned the level at which funding was directed: "The investment is more at the national level than provincial and at the level of national this is done through subsidies for the university to do research however the funding is very limited".

The researcher's view is that this lack of investment from government's side may be associated with the distorted thinking by key decision makers that government's role is only to deliver goods and services and that of the universities is to generate knowledge, among their other responsibilities. This is a distortion precisely because in the current knowledge economy space R&D is vital for planning, development and economic growth, a notion discussed in detail in the literature reviewed in both Chapter 2 and Chapter 3. Moreover, to support this finding that provincial administrations are still lagging behind in R&D investment, the researcher conducted an analysis of the budget documents and financial allocation within these three selected provinces. This revealed that Limpopo and Northwest Provinces do not invest in R&D (Table 8), whereas in Gauteng there have been financial injections to support programmes on R&D as well as the GCRO research initiatives. The researcher's view is that Gauteng can still do more

to invest in and fund R&D especially because it is regarded as the economic hub of the country (see Table 10).

7.10. MOTIVATING FACTORS FOR PROVINCIAL ADMINISTRATION/GOVERNMENT TO INVEST IN R&D

In response to this question the respondents cited many factors, central among which was the issue of prioritizing issues that are enshrined in the National Development Plan (NDP). One of the respondents from the Northwest University made an interesting observation that pointed to the Sustainable Development Goals (SDGs) and AGENDA (2063). These SDGs are global goals intended to strengthen the means of executing global partnerships specifically for ensuring sustainable development across countries. The African Union (AU) Agenda 2063 is the AU's strategic developmental blueprint aimed to ensure that African socio-economic development is attainable (Mhangara, Lamba, Mapurisa and Mudau, 2019). This agenda is a continental strategic plan that aims to reposition the continent and put it at a competitive advantage and ensure that poverty and inequality are alleviated (Mhangara, et.al, 2019). The respondent from Northwest University posited that the Sustainable Development Goals (SDGs) and AGENDA 2063 issues should also be considered because South Africa could not operate in isolation since it was part of the global community. In his response he said that:

> South Africa has the NDP and there are priorities enshrined there which are needed to be taken into consideration. Also, the need as a country to address SDGs and issues in the Africa AGENDA 2063 should also be one of the motivating factors. Identifying a real research agenda for North West Province should not be difficult because the problems are enshrined in the NDP and other policy instruments. Developmental issues such as the relationships between community and government, governance challenges, unemployment, inequality and poverty should be of key interest for government to tackle through investing in research and development. Government must work with academic institutions and research institutions such as CSIR, ARC, HSRC to leverage on the issue of research capacity and funding.

Another respondent highlighted the following priorities deemed necessary for government to consider as critical factors for R&D investment:

- Improving the quality of life of ordinary people;
- Finding solutions to existing socio-economic challenges;
- Generating knowledge;
- Developing human capital;

- Driving economic growth through R&D;
- Promoting entrepreneurial skills by undertaking research that is meant to enhance the SMMEs, especially in rural areas and townships;
- Supporting innovation in technology and entrepreneurship to drive economic growth in sectors such as agriculture and tourism; and
- Commercialising indigenous knowledge systems.

One interesting view was that;

> Funding R&D is not necessarily a problem in South Africa looking at the revenue of the country. What is a problem is how to priorities the spending of the financial, there is an unfair distribution and allocation of funding mainly because the political will to place R&D as a priority matter appears to be insufficient".

Perhaps the R&D advocacy and participation of academia, the private sector and civil society are insufficient to enforce government to prioritize R&D and spending, as other countries are doing globally. South Africa's 2021/2022 GERD figures indicate that South Africa, with about 0.75% of GDP dedicated to R&D, is leading other countries in the Southern African region such as Botswana with 0.54%, Tanzania with 0.51%, Mauritius with 0.35%, and Namibia and Mozambique with 0.34% each (DSI, 2022). Since South Africa seems to be doing better, the respondent's thinking was that the challenge was not funding but how South Africa prioritized its spending. It was within this context that government should be encouraged to have an alliance with academia, civil society and the private sector and ignite conversations about the critical roles that these institutions could play. Where conversation had already begun, government should create a policy landscape to ensure that these critical stakeholders could be among the agents to invest in R&D.

7.11. CHALLENGES FACED BY UNIVERSITIES WHEN DEALING WITH THE PROVINCIAL ADMINISTRATION/GOVERNMENT

A question was posed to all the four respondents on what challenges the universities faced when working closely with the government. The perceptions of the respondents include the institutionality of government as a public sector. The respondents cited the inability to differentiate between the public administration and politics as an extremely worrisome factor which impeded collaborations and partnerships between government and universities. As one respondent expressed it:

> The reality in RSA is that it is difficult to distinguish between politics and administration/government… which result in having no political will by the political heads on prioritizing R&D". The caliber of politicians who understand the role of university as far as research and development is concerned is very important in the pursuit of planning and development.

The other respondent resonated with this, highlighting institutional arrangement matters and arguing that some of the challenges were in relation to "The poor liason between organizations (i.e. government and universities) due to institutional arrangement difference and organizational cultures is a challenge. Also, bureaucratic challenges, for instance signing of MOUs can take over six months".

Another view that was raised during interviews was the mismatch between the financial year of government and the academic year of universities:

The respondents have indicated that universities are more focused on the core activities i.e. primarily teaching and learning, research and community engagement. It then becomes a challenge trying to match the calendar year of the university to that of government, these calendars are not aligned at all. This mismatch in interactions due to the financial years also has a bearing on financial obligations when we enter into collaboration with government because it tends to hinder planning and progress.

Among others, the challenges that were cited included a lack of transparency by government, poor communication strategies between research collaborators and partners, the inability to define boundaries of engagements between parties, a lack of financial resources and commitment by government, which resulted in no financial injections to support R&D initiatives, and a shortage of skills in government which had a direct bearing on the interactions between government and the universities.

These challenges highlighted by respondents may be a clear indication that universities are not satisfied with the seriousness with which government approaches R&D issues in provinces, particularly the issues of R&D investment and funding. These findings provide a gloomy picture about the level of commitment on R&D issues from the point of view of universities.

7.12. MEASURES TO ENHANCE THE RELATIONSHIP BETWEEN THE UNIVERSITY AND PROVINCIAL ADMINISTRATION/GOVERNMENT ON ISSUES OF R&D AND PLANNING AND DEVELOPMENT

The general view was that these relationships were of paramount importance and should be regarded as imperative marriages that must be sustained by all parties involved. Additionally,

all the relevant parties in such relationships should fulfill their respective roles to make the partnerships a success.

The respondents highlighted various ways that should be considered to make the relationship between government and universities workable. One respondent's view was that organizational cultures were complex and if not taken into consideration might exacerbate silo mentality on how developmental problems were tackled:

> The government system is very complex, the complexity is in how institutions work in silos. The university system is not tied to provincial priorities. These exacerbate the problem of silo mentality. We need to have a well- coordinated plan in government which deals with the potential partners in the province and how to address problems as a collective.

This respondent also highlighted the importance of proper coordination, saying that:

> We need to formalize and mainstream our relationship in such a way that our systems feed into each other strategically. For instance, we can consider longitudinal studies that may assist the province on various developmental issues. At the moment what is lacking is a comprehensive plan and strategy. University and government need to relook the system in order to ensure that issues such as provincial growth, local economic development are achieved. By doing all of these things mentioned the university will also be achieving its core mandate of teaching and learning, R&D and community engagement".

Another view that emerged in this study was that there should be a platform for an open-door policy where government officials could learn best practice from the university on how they could continue to excel in their R&D functions:

> There's a need to for government departments to have a cognate department in the university where they can learn from. With these cognate departments there can be regular platform for researchers in government and university to discuss matters of importance for a particular discipline. Another consideration can be having a platform that that can engage on policy issues emanating from speeches such as SOPA, SONA, SOMA; this platform can also be used to inform such speeches so that they are based on research evidence.

Basically, the universities had to be afforded impactful roles on providing advisory services to government to deal with existing socio-economic ills and also influence and support the research agenda of government. Importantly, the culture to utilize research as a strategic tool to influence policy and practice and not populism must be explored in provincial administrations.

7.13. SUMMARY OF THE CHAPTER

The perceptions of universities on R&D and planning and development were guided by their individual experiences of working closely with the provincial administrations/government, particularly on R&D and planning and development issues. The universities perceived R&D as an integral element of planning and development and thus it should be used to inform planning and development, policy making and decision making in government. The predominant view emanating from this chapter was that universities were not entirely satisfied with how government was prioritizing R&D. However, it was acknowledged that some attempts were being made to involve universities in participating in government affairs, especially on planning and development issues. Such attempts involved universities serving in committees and forums to render advisory services; however, these needed to improve so that the relationship between universities and government could be mutually beneficial. It was very apparent, based on the findings of the study, that universities are willing to build solid relationships with government for the betterment of the lives of the people. The notable conclusion drawn from the findings is that R&D funding and investment is a thorny issue that warrants provincial administrations' attention.

CHAPTER 8: PRESENTATION AND INTERPRETATION OF FINDINGS FROM ANALYSED GOVERNMENT DOCUMENTS

8.1. INTRODUCTION

This chapter provides findings on provincial strategic plans that are considered to be macro-policies, also referred to as Provincial Growth and Development Strategies (PGDS) for Limpopo, Gauteng and North West provinces. The analysis of these important documents was guided by the following thematic areas drawn from the research questions and objectives as stipulated in Chapter 1: Research and Development, Research Agenda, Planning and Development and Research Funding and Investment. The aim of this document analysis was to establish if research and development is being prioritized by the three selected provinces. Attention was extended towards planning and development in the provinces and whether it is informed by research.

Below is the list of documents analysed for the study and identified themes.

Table 9: List of analysed documents

Documents	**Themes**
1. Northwest Provincial Growth and Development Strategy (PGDS) 2. Growing Gauteng Together: 2030 (GGT) 3. The Limpopo Development Plan 4. The Limpopo Provincial Research and Development Framework 5. Gauteng annual and budget reports from 2018/19 to 2021/22 financial years 6. Limpopo budget reports from 2017/18 to 2022/23 7. Northwest annual report 2017/2018 to 2021/2022	Research and Development; Planning and Development; Research Funding and Investment; and Research Agenda

8.2. RESEARCH AND DEVELOPMENT

During interaction with officials in the Northwest Province and also going through the PGDS it was discovered that the province does not have any R&D strategy, policy or framework at this point. This is a worrisome finding as it suggests that there is no policy or legislative framework regulating and guiding provincial R&D activities. In the Northwest Province PGDS: 2020-2024, the concept R&D appears about six times. In this strategic document the concept is linked to how it can be used to influence production and competitiveness, how the province needs to improve on research and innovation and that the province should promote research and knowledge generation. However, there seems to be no information on how these would be achieved.

In the Limpopo province, in the provincial strategy called the Limpopo Development Plan (LDP): 2020-2024, the concept of R&D appears more than 50 times. It should be noted that the LDP is a macro-policy for planning and development in the province. The emphasis on the concept of R&D in the LDP is largely that R&D should influence its planning and development. This is a positive finding as it implies that the province has an understanding that R&D should be put at the heart of planning and development initiatives as a strategic tool. For instance, in this development plan, attention is directed towards using R&D for the creation of opportunities, competitiveness and productivity in the mining sector, special economic zones, industrial hubs, tourism economy, agriculture, and manufacturing (LDP, 2020). Moreover, the plan also touches on the aspect of innovation to bring solutions to existing developmental challenges in the province and also to drive productivity within the mining sector, among other sectors of the economy.

Limpopo Province also emphasises the need for R&D collaborations in both the provincial R&D framework and the provincial development plan. The positive thing in this finding is that these policy documents also suggest that collaborative efforts will be made through the establishment of a provincial research hub, which will be in partnership with academic/research institutions. This finding suggests that if these collaborative efforts are implemented properly then issues and challenges raised by the universities in Limpopo in the preceding chapter may be addressed. What seems to be problematic is that these provincial plans from the Limpopo Province are silent on the injection of financial resources to make this collaboration and establishment and implementation of the research hub a reality and on how to sustain the hub.

There is no indication how the provincial administration will provide financial resources and create an enabling environment for the research hub to take shape (please refer to Table 8 on budget findings regarding allocations by province to see how the Limpopo Province has been doing over the years). Moreover, there is no explanation of how financial resources will be directed towards the establishment of the hub and its implementation. Although there is an indication that the hub will assist in improving the ability for government to source funding from prospective funders and donors, there is no indication that the Department of Provincial Treasury will fund the hub. The plan also suggests that R&D should be significantly expanded as a strategic tool for the province by 2030.

Gauteng Province has also highlighted issues of research collaborations with the universities, research institutions and innovation hubs within the province. Furthermore, the development plan for Gauteng Province, Growing Gauteng Together (GGT): 2030, has listed the Central Corridor, which it describes as the financial and technological nerve centre and pre-eminent hub for innovation, research and development, as one of the five development corridors that will be exploited and explored by 2030. This corridor is supposedly the pipeline for major projects within the province and it is planned that together the provincial administration and the private sector will be looking at an investment of about R200 billion. This finding is positive as it suggests that Gauteng will bring on board different role players in academia and the private sector to be part of planning and development. This collaboration may yield positive results for the province if implemented properly.

In Limpopo and Northwest, not much has been said on the same issues. Apart from that the provinces have entered into MOUs with academic institutions, there has not been any quantification of the investment that will go into such agreements. Moreover, the MOUs are not necessarily legally binding in comparison to MOAs; hence much has not been articulated in this regard, unlike in Gauteng Province.

Table 10 provides a budgetary analysis of the Limpopo, Northwest and Gauteng Provinces.The table illustrates provinces' budgetary allocations on R&D activities and it depicts the budgetary deficits in Limpopo and Northwest provinces It further indicates that Gauteng Province has attempted to inject financial resources into R&D, and while it is doing relatively better than the other provinces, it needs to do more considering that it is the economic hub of the country.

Limpopo and Northwest province should consider learning best practice from Gauteng Province in terms of how to lay the foundation for R&D investment.

Table 10: Budgetary findings from Limpopo, Northwest and Gauteng Provinces

Budgetary Findings from Limpopo	Budgetary Findings from Northwest	Budgetary Findings from Gauteng
-The budget reports for the Limpopo Office of the Premier for period 2017/18 financial year to 2020/21 financial years have indicated that the Office has not been making any financial investments in R&D issues. The budgetary allocation for this stipulated period was on average about R3 million, which is only meant for compensation of employees (CoEs) which are mainly salaries of the staff in the research units. Other budgets amounting between R 111 443.00 and R 112 382.00 were meant for travelling, accommodation and catering meant for attending meetings, workshops or conferences. -The 2021/2022 budget report revealed that for the first time the Office has managed to inject about	-The Northwest Office of the Premier annual report for financial years 2017/2018 and 2018/2019 does not have any budgetary allocations pertaining to R&D activities in the province. The size of the allocation for the Research Directorate in the Northwest Office of the Premier during 2021/2022 financial year was R2,761,000.00. This amount is inclusive of compensation for employees in the directorate, which accounts for R2, 656,000.00. The difference of R105, 000.00 is for goods and services like stationary, etc. There is no single allocation for R&D activities in this budget.	- According to the Gauteng Provincial Annual Report for 2017/18 financial year, the Gauteng Office of the Premier injected about R 327 044.00 in a research project entitled “background paper for the Italian workshop”. The Department further funded a project for an amount of R1 112 013.00 for a research project entitled “a scenario planning for Gauteng Province”; about R106 484.00 was injected into a research data analysis. A further R600 000.00 was injected into report delivery and dissemination. - In the financial year 2018/19 a study on Gauteng Provincial Government (GPG) youth was conducted at the cost of R483 600.00 (GPG Annual Report 2018/19, 2019). According to the GPG Annual report

R500 000.00 towards research projects looking at the impact of Covid-19 on the socio-economic development in the province. This study was conducted in collaboration with universities of Limpopo, Venda, UNISA, TUT and Vaal University of Technology.		2018/10, a research study was conducted on Life-Esidimeni which cost about R 400 000.00. In the same report it was recorded that an amount of R 1.7 million was budgeted for the GCRO Research Chair. However, the budget was not spent due to the finalization of the MOU between GPG and HEIs, which was not concluded by the end of the financial year. -The Annual Report 2019/20 revealed that the provincial government injected about R26 million into a research project conducted by the GCRO, which is a provincial research hub in collaboration with the GPG, UJ and WITS. Additionally, an amount of R494 500.00 was injected into a baseline research study in the same financial year. A further R 366 156.00 was channeled towards a social media research analysis research project. -The Annual Report has highlighted that during 2020/21 research activities started lagging due to the Covid-19 pandemic and this

		has affected the R&D budget. Only an amount of R4656.00 was injected into the research and advisory function of the Office of the Premier. Similarly, in 2021/2022 as the Covid-19 progressed a similar pattern of lower financial injections in to R&D functions were observed as the Office of the Premier only budgeted R 4000.00 for the Research Chair project and about R6646.00 into the research advisory function.

8.3. PLANNING AND DEVELOPMENT

The North West Province's Provincial Growth and Development Strategy (PGDS) highlighted the need to strengthen planning and development using relevant strategic tools such as community involvement and building provincial and municipal capacity to plan effectively. The PGDS does mention R&D in passing but it does not mention it as a strategic tool for strengthening planning and development, which suggests that R&D is not being prioritized or utilized to its maximal potential. The negative thing here is that this finding suggests that planning and development in the North West Province is neither evidence based nor dependent on R&D.

The LDP for Limpopo Province has emphasised the need for proper planning and development on provincial economic quick-wins such as the tourism economy. The plan indicates that there is a need to integrate tourism plans within sectoral plans in provincial and local government. Furthermore, the planning process must be evidence-based to enable decision makers to make informed decisions anchored on ethical principles. The plan emphasizes the need to use

credible research data and scientific advice to support government's planning, development and monitoring and evaluation activities.

The Gauteng's document on Growing Gauteng Together: 2030 (GGT) highlights that the province has developed an infrastructure investment agency to explore alternatives for funding of planning and development activities. This province has prioritised the promotion of sustainable development in the provincial development plan through the innovation and R&D hubs.

8.4. RESEARCH FUNDING AND INVESTMENT

The Provincial Growth and Development Strategy (PGDS): 2020-2024 of the North West Province does not present substantive information on the critical phenomenon of R&D funding and investment. This document is supposedly a provincial strategy aimed at paving the way for planning and development activities for a period of five years. Furthermore, this strategy sets out developmental targets that should be achieved within five years. The concept of R&D funding and investment is not even mentioned in this strategy. However, under Chapter 3, "Economic growth and job creation", a statement is made on the significance of using research, development and innovation to increase production and create opportunities in the province and also to improve the use of research and innovation for economic purposes. Furthermore, in Chapter 7 of the PGDS, "Improving education, training and innovation", the concept of research and innovation is mentioned with the emphasis that research and innovation ought to play a critical role in improving national and global competitiveness to build the provincial economy and that different partners should be brought together to ensure that this is achieved. The plan on how research and innovation can be adopted as a strategic tool to build the economy of the province and subsequently achieve planning and development is not presented. Furthermore, the strategy does not promote the culture of using evidence for planning and development of the province because there is no mention of the importance of developing, implementing and funding a provincial research agenda. The key in ensuring that planning and development is sound and implementable is through conducting quality and purposeful research and therefore implementing the recommendations by translating findings and recommendations into policy and practice.

Although the Limpopo Province seems to be advocating R&D for planning and development, it is not explicit on how the provincial administration will tackle the question of R&D funding and investment. Even in mentioning the proposed provincial research hub, there is no indication of R&D funding. It may pose a challenge for the province to attain its desired R&D goals if there is no financial injection. This also suggests that there is no leadership or political will and commitment if a strategic policy document such as the Limpopo Development Plan cannot be explicit i this important respect. It suggests that in reality the provincial administration does not prioritize R&D although they seem to understand the significance of having R&D as a vehicle for planning and development.

In the Director's General message for Gauteng's GGT document, the Director General's opening statement says, "Any successful administration must invest in R&D as part of embracing evidence-based decision making. This will enhance the work of the state in systematically resolving challenges of poverty, unemployment and inequality". This opening statement can be regarded as a pronouncement that the province should invest in R&D activities in Gauteng. Gauteng has highlighted that government should adopt a 'pragmatic and realistic' implementation plan for the provincial development plan, which should be based on scientific research to ensure that policies and plans are scientifically sound and well informed. Although the province is not explicit about the concept of research funding and investment, it mentions that it has a relationship with about six academic institutes and seven research institutes, which include a research observatory and an innovation hub as some of their partners in knowledge generation and creation. However, it is not clear how much the province is investing in research and how the research is being funded or what the process of the funding and investment on research entails. This then poses a threat to a progressive notion of investing in R&D if the province cannot be explicit about the R&D funding model for the province.

8.5. RESEARCH AGENDA

In the Northwest's PGDS there is no indication of how the provincial administration aims to fund the provincial research agenda and activities. For a document that is supposedly a strategic policy of the province to be silent on this important element on research is worrisome.

The Limpopo Development Plan has mentioned that the provincial research agenda will be enhanced through the provincial research hub; also that the hub will enable academic

institutions to conduct research that is responsive towards the research priorities of the province. The provincial plan has also listed the research niche areas that will assist in developing the provincial research agenda in support of the implementation of the provincial plan, whereas the GGT Gauteng Province does not mention anything on the research agenda of the province in support of the provincial plan. The lack of mention of a research agenda and funding it cannot be ignored and may need to be prioritized by these provinces during the review of these strategic plans. The inclusion of a research agenda and its funding may provide a clear indication of how the government would wish to shape the provincial R&D landscape and subsequently the policy landscape.

8.6. SUMMARY OF THE CHAPTER

The findings from the document analysis of strategic plans for each province provide a clear picture of how the issue of R&D is perceived by provinces. Firstly, based on the documents analysed, it is clear that R&D is not taking a centre stage when it comes to planning and development. Secondly, since R&D is not prioritized by provincial administrations, the issue of R&D funding and investment is not clearly advanced in these strategic documents. The findings emanating from the document analysis resonate well with findings from key informants in offices of the premier, universities and research forum/structure members as presented in both Chapter 6 and 7.

The researcher suggests that provincial governments need to do more and to improve on their way of doing things if they are serious about accelerating growth and development in their provinces. These improvements should start with prioritizing R&D and financing R&D initiatives. Those in positions of leadership in provinces should have insight on the role R&D can play in maximizing socio-economic development and growth for the bettering and transforming society and the lives of ordinary citizens.

CHAPTER 9: CONCLUSION, RECOMMENDATIONS AND PROPOSED MODEL

9.1. INTRODUCTION

The findings of the study were presented in chapters 6, 7 and 8. Chapters 6 and 7 presented key findings emanating from interviews, whereas Chapter 8 provided findings from a government document analysis. This chapter presents the conclusion, recommendations and presentation of the proposed model entitled “Research and development (R&D) model for planning and development” within provincial administration. The chapter also provides insight on the role R&D ought to play in provincial planning and development in South Africa’s provincial administration. The inferences presented in this chapter are essentially drawn from the evidence presented in the preceding chapters of this study.

The conclusion and recommendations for each research question and the objectives of the study are presented below. Furthermore, to ensure that the study contributes to the existing body of knowledge on R&D as well as to policy and practice, an R&D model is presented. The aim of this model is to influence policy and practice in the realm of public affairs and to add to the body of knowledge as the literature reviewed for this study demonstrated a dearth of knowledge on R&D matters in provincial settings. This is a literature gap particularly because much of literature is concentrated on the role of R&D for international and national growth and development and not necessarily the growth and development of provinces or provincial administration. This gap poses a threat to developmental affairs in South Africa and other countries, especially developing countries. Hence, the need is identified to ensure that more literature is generated on R&D that speaks to matters of provincial importance. The findings of the study have illustrated that there are deep-rooted challenges associated with the prioritization of R&D and its use for planning and development in provinces in South Africa. This gap between theory, as in what is contemplated, and policy and practice, as in what is needed on the ground, is precisely what is problematic in South Africa. This study has implications for other provinces. If results from Gauteng, Limpopo and North West provinces reveal these critical challenges, then other provinces probably have similar challenges pertaining to the significance of R&D in planning and development.

9.2. LINK BETWEEN THE RESEARCH QUESTIONS AND THE FINDINGS

The study has achieved its objectives as set out in Chapter 1 of the study, which was to investigate and explore the role of R&D in planning and development within provincial administration, with the ultimate goal of developing an R&D model for planning and development. This section draws conclusions based on the empirical findings from interviews and from the document analysis. The conclusions are proffered in line with the research questions posed in this study that have a link with themes of the study as set by the researcher to ensure that the study was conducted within the parameters of the research questions and objectives.

- **Research question 1: What is the role of research and development in provincial planning and development?**

The study's aim was to iexplore the role of R&D in planning and development within provincial administration. The empirical findings were that R&D does not play a major role in planning and development in the provinces of Limpopo and North West whereas in Gauteng there are attempts to rely on research evidence when planning and development take place. Gauteng tends to use the expertise of the Gauteng City Region Observatory, which is a partnership between Gauteng Provincial Government and the universities of Johannesburg and the Witwatersrand. Limpopo and North West provinces have acknowledged that R&D is an important element for planning and development and that it can be a vehicle towards improving the lives of ordinary citizens, transforming society and accelerating service delivery.

The document analysis also resonated with the views and perceptions of the key informants in the study. The researcher analysed the provincial growth and development strategies (PGDS) of the sampled provinces and discovered that little is mentioned on how R&D influences planning and development in the provinces. The PGDS is supposedly a macro-policy of provinces and it is thus aimed at assisting government to fulfil its developmental mandate and explaining how provinces will deliver goods and services to communities. Scholars have emphasized the need for evidence-based planning to be at the heart of developmental process and decision making to achieve sustainable socio-economic development (Thirtle et al., 1998; Gyekye et al., 2012 and Tsvakirai et al.; 2018).It therefore becomes worrisome when the PGDS does not seem to see R&D as a priority and a vehicle to strengthen planning and development.

An element that came out strongly from the findings is that one of the factors affecting the integration of R&D in the planning and development process is the evidence of a silo approach or silo mentality on how different strategic directorates tackle developmental challenges in the province. Scholars posit that some of the complexities found in integrated development processes relate chiefly to silo planning, unintegrated planning and uninformed or baseless planning and development (Ingle, 2007; Roefs, Atkinson & Makgoba, 2003). Hence there is a need to have a well-coordinated approach that will enhance the inclusion of R&D as an integral part of planning and development in government.

The respondents of this study, which comprised government officials both at senior management and middle management positions, research forum/structures and university representatives, emphasized the importance of R&D in the planning fraternity and further indicated that planning and development should not occur outside R&D as it is an essential strategic tool and it should not be treated as an afterthought. The findings also indicate that research is regarded as more of an academic exercise than a solution to existing and practical developmental challenges. It was also revealed that the academics have not made sufficient advocacy for the utilization of R&D to solve problems at the grassroots level in provincial settings of South Africa. Therefore there is a need for more advocacy on the part of academics through various modes of research dissemination such as writing policy briefs and platforms that are specifically directed to high ranking government officials, accounting officers and the political leadership as they are the key decision makers in government, unlike officials who are not at the decision making level.

- **Research question 2: What are the planning and development approaches in the Provincial Administration?**

This question aimed at identifying planning and development approaches used by provincial administrations. The findings revealed that different sections or directorates within the offices of the premier in Limpopo, Gauteng and North West Provinces use a variety of different approaches. However, there are some commonalities, such as the use of strategic planning sessions, the drawing of annual performance plans (APPs) and the use of the Theory of Change. There are also differences in the approaches of other directorates. For instance, some respondents indicated that they used evidence maps to approach their planning whereas others indicated that they used evaluation processes as their planning approach.

Notably, planning approaches are imperative in strategizing ways in which directorates, sub-branches, branches, the offices of the premier, sector departments and ultimately the provincial administration will respond to different challenges as enshrined in their PGDS. Additionally, these planning approaches are significant in assisting provincial administration to reach the targets in their PGDS, annual performance plans (APPs) and other strategic plans. Therefore, it becomes critical for provinces to approach planning in a standardized manner to avoid confusion. Literature has shown that most small countries, including Monaco, St Lucia, the Maldives, Iceland, Swaziland, Botswana, Mauritius and Qatar, have over the years resorted to adopting a specialist approach rather than a generalist approach (Bray, 1992). By so doing, manpower planning requires professionals to drive the planning process (Bray, 1992). Other countries adopt micro-planning approaches. For instance, when doing educational planning these countries apply micro-planning at national planning level, which will include the location of educational institutions, the characteristics of schools, and the preferences and needs of individual schools. According to Bray (1992), planning in smaller countries is largely a personalized process in the sense that planners are attached to the person they serve due to small numbers in those countries, whereas in larger countries planners usually deal with statistics and abstract concepts and are not necessarily attached to the people they serve. The advantages of personalizing the planning process is that there is accountability, sensitivity, citizen participation and proper coordination. In essence, larger countries like South Africa should learn from the smaller countries and ensure that provincial administrations adopt a personalized planning approach whenever planning and development activities take place. Ok

- **Research question 3: How do the Provincial Administrations approach planning and development?**

In line with the findings pertaining to research question number two as indicated above, the findings revealed that in some cases directorates rely on the medium-term strategic framework (MTSF) to develop their own directorate priorities, which will be aligned to the PGDS. Other directorates instead prefer to rely on the State of the Nation Address (SONA) and State of the Province Address (SOPA). It was revealed that other directorates will only draw their focus from the National Development Plan instead of other planning approaches. The findings revealed that in their strategic planning sessions the branches often make baseless decisions that do not match the realities on the ground.

These findings are indicative of diverse planning approaches that are a challenge to how government responds to the actual socio-economic challenges of ordinary citizens, namely poverty, inequality and unemployment, commonly known as the triple challenges as enshrined in the National Development Plan (NDP). According to Dale (2004), Theron (2007) and Tsheola (2012), one of the requirements of planning for service delivery is having a strong balance between technical planning and process centered planning. Failure to have this poses a threat to how government's plans respond to the realities at the grassroots level because of the mismatch between government plans and challenges in communities. It is only through empirical evidence that planning processes can be informed. The perceived lack of balance between technical planning and process centered planning as revealed in the findings has the potential to affect the effectiveness of the Government's response to socio-economic challenges faced by ordinary citizens in selected provinces in particular and in South Africa in general.

The findings also reveal that in Limpopo and North West, R&D has little influence on planning and development activities. Respondents indicated that more can be done to ensure that R&D was used to its maximum potential, perceiving R&D as a solution to developmental challenges in communities. Furthermore, the findings indicate that there is a need for government to enforce policies that prioritize the use of R&D as a vehicle for growth while simultaneously directing resources towards R&D initiatives that can influence planning and development processes in government.

- **Research question 4: What are the challenges in provincial planning and development?**

- 'This question was posed to government officials responsible for provincial planning and development, to research forum/structure members who dealt with issues of planning and development and to the four university representatives who had worked closely with provincial administration on issues of planning and development.'

The findings unearthed a myriad of challenges with regard to planning and development activities in provincial administration. Some of the primary challenges pertained to financial and human resource constraints, unskilled human resource, silo approaches on how planning and development is being approached and handled in government and uninformed targets set out in provincial plans. The findings also highlighted that political interference hinders progress in

planning and development as a result of political appointments of unqualified personnel in critical and strategic positions. It was also revealed that one of the main challenges in provincial planning and development is the inability to use research evidence to inform planning and development. Additionally, poor reliance on scientific evidence has led to plans being unrealistic and oblivious to real challenges that communities are faced with daily, resulting in a disjuncture between services required by communities and services rendered to them by government; hence, community protests have become a norm.

- **Research question 5: How is the level of investment and funding of research and development?**

This research question wanted to understand the position of the provincial administration on R&D investment and to unearth the level of such investments within the three provinces. The findings revealed that in fact Limpopo and North West are not doing well in this regard; whereas Gauteng Province is at an advanced position on R&D investment and funding. The findings from Limpopo and North West Provinces revealed that one of the reasons behind the lack of R&D investment and funding is that decision makers do not have a clear understanding of the significance of R&D in planning and development. The key decision makers are unaware of the power of R&D as a vehicle for growth and development, hence its advocacy is minimal and it has not enjoyed the attention it deserves. Notably, these provinces are lagging behind on R&D investment and funding even in the midst of research evidence showcasing how big economies across the globe have managed to grow and sustain their economic growth and socio-economic development using R&D.

The findings suggests that Gauteng can invest more in R&D, although it is far ahead of its counterparts. In fact, Gauteng serves as a case study for other provinces to learn best practice on how to invest in R&D. The critical aspect here is that Gauteng has collaborated with both the private sector and academic/research institutes. Both the empirical data and document analysis have illustrated that Gauteng is serious about R&D investment as it has committed 1.5% of its GDP towards R&D initiatives.

Perrot (2013) and Chen et al. (2019) posit that countries that prioritize R&D investment and funding have experienced higher growth and returns on the investments. In fact, evidence suggests that in other countries there is a common trend for governments to invest more in R&D

than the private sector (Chen et al., 2019). Furthermore, these countries also provide a favorable policy landscape for R&D to thrive and transform society and curb socio-economic challenges such as poverty, unemployment and inequality. It is therefore observed that South Africa's provincial administration needs to re-strategize on how to start investing in R&D as a means of production, effectiveness and efficiency in government. Additionally, key decision-makers should discard their view that R&D is an academic exercise that should be undertaken by academics and instead see it as an integral part of practice in public administration because it is through evidence that proper planning and development can take place. This is linked to findings in Table 8 on how provincial administration has over the years provided a budget for R&D activities. Closer attention should be given to Northwest and Limpopo provinces particularly rather than Gauteng Province, which has over the years made a budgetary allocation for R&D activities, although it can do much better.

- **Research question 6: What are the determining factors for R&D investment and funding?**

The study was set to establish determining or motivating factors for provinces to consider R&D investment and funding as one of their key priorities going forward. The question that was posed was "In your own understanding, what should be motivating factors for provincial administration to invest in R&D?" The findings revealed that respondents are not convinced that government is doing much to invest in R&D. Also, the respondents are not satisfied with the manner in which government approaches the issue of R&D in general and in particular the issue of funding and investing in R&D.

Most respondents indicated that what should motivate governments to invest in R&D is primarily the need to improve on service delivery to the people and to devise impactful planning and development initiatives to address the challenges in communities. The findings also indicate that this can only be achieved if provincial administrations rely on scientific evidence when developing provincial strategic plans in their pursuit to improve the lives of the people. Furthermore, the findings revealed that these factors should include a desire for governments to be innovative, globally competitive and to create a knowledge economy that would form the basis of sound decision making, planning and reporting processes. All these factors should be central to the desire for provincial administration/government to address the socio-economic

needs of the citizenry. In the long run this will tackle the issue of community complaints and service delivery protests.

- **Research question 7: What R&D model can be developed for South Africa's provincial administration?**

The perceptions and views of the respondents were sought on what measures could be adopted by provincial administration/government to enhance its functioning, specifically in R&D. The rationale for this question was to gather ideas on what should comprise an R&D model for South Africa's provincial administration. The findings pertaining to this question highlighted various factors that should be considered for a workable and impactful R&D landscape within provincial administration. The highlighted factors include research collaborations and partnerships between government, academia and the private sector. Additionally, funding/budgetary allocations and appointing skilled and qualified officials were at the top of the list of suggestions on how to enhance R&D in provinces. Moreover, it was indicated that there is a need for provincial government to integrate its R&D and planning functions and also to develop and coordinate a well-funded provincial research agenda that would be shared with the universities in their province. The dissemination of this research agenda should be done to encourage postgraduate students and candidates to tap into research areas that are of great significance to the identified needs of the provinces as enshrined in the provincial strategic plans. The findings of the study indicate that there are many challenges that provincial administrations are faced with and it would take purposeful research to guide provinces on how to meet such challenges. The failure to do so over the years is linked to the inability to utilize research evidence when planning for development. Arora et al (2018) and Chen et al (2019) maintain that countries across the globe have managed to tackle their socio-economic challenges successfully through the use of R&D by creating a knowledge-based economy.

9.3. PROPOSED RESEARCH AND DEVELOPMENT MODEL FOR PLANNING AND DEVELOPMENT IN PROVINCIAL ADMNINISTRATION

This section presents a proposed model that was informed by the literature that was reviewed for the purpose of this study and the theories underpinning the study. The model was also informed by the empirical findings emanating from the interviews that were used as part of the data collection instruments and from the document analysis. The interviews and document

analysis are interconnected with the literature reviewed. This section is critical as it seeks to answer the very questions that were raised in Chapter 1 of the study and also to contribute to the body of knowledge as already alluded to in the significance of the study section in Chapter 1. Moreover, the section seeks to connect to the aim of the study, which was to investigate and explore the role of R&D in provincial planning and development. The model aims to demonstrate the role R&D can play for planning and development both within provinces and potentially at the national level. The success of provincial planning and development lies in the utilization of R&D as a strategic tool. Additionally, for government to respond effectively and efficiently to socio-economic challenges facing the society it needs well-informed decisions to resolve existing challenges. In the absence of credible and reliable research data it becomes impossible to direct resources and energies where they are most needed. The literature reviewed in this study has indicated that countries that are doing well in responding to challenges facing citizens, such as poverty, inequality, economic declines and more, have managed to turn their situations around with the use of research, development and innovation. Additionally, the economic depression that befell Asian countries was overcome by the Asian countries' reliance on research, development, innovation and technology. Evidence from the reviewed literature has shown significantly that R&D can be greatly impactful if the policy landscape is enabling and conducive. The model is presented in the form of an illustration below in Figure 9.1, entitled **"**A Research and Development Model for Provincial Administration".

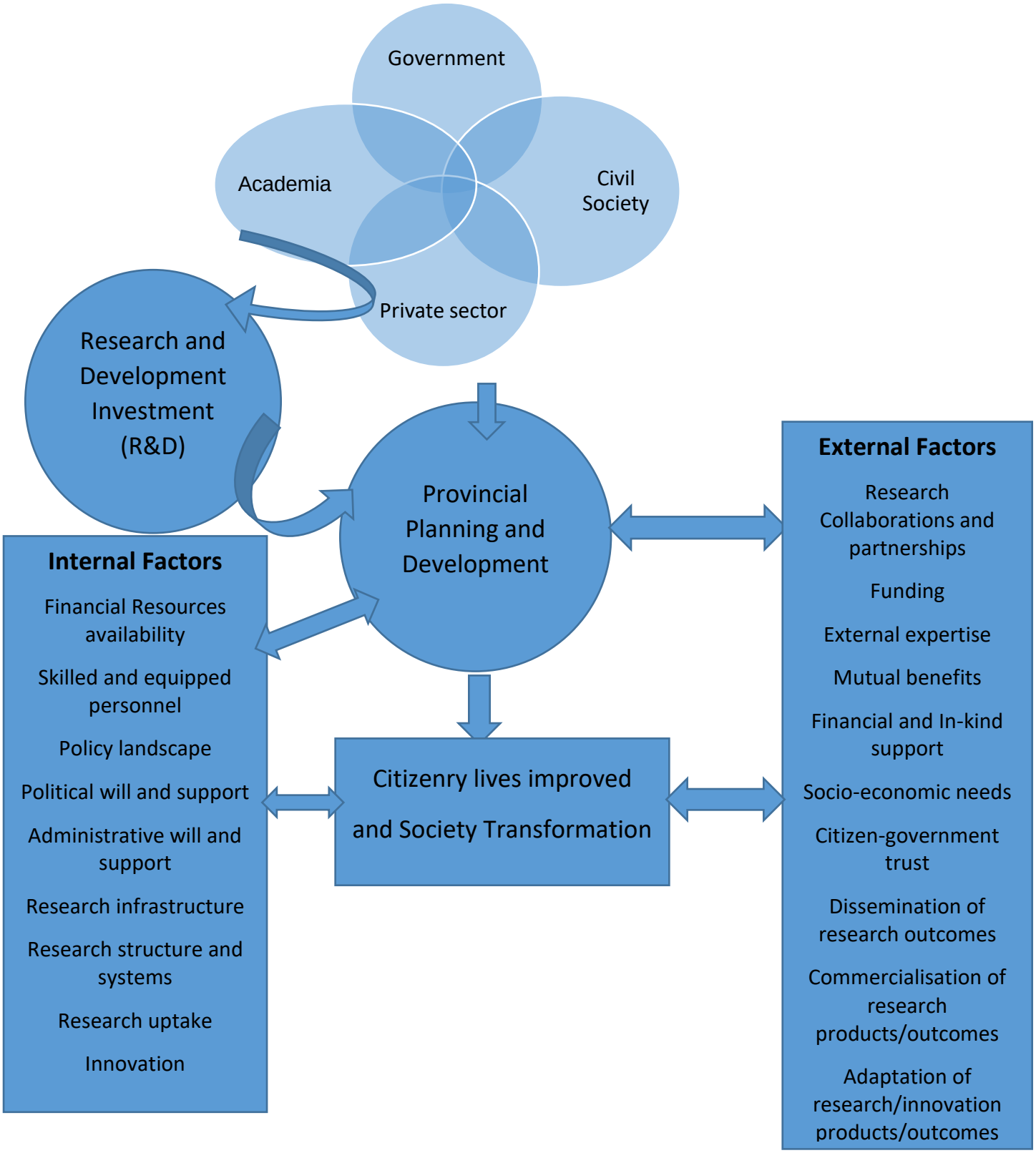

Figure 9.1.: A Research and Development Model for Provincial Administration

Source: Author's own illustration

Models aim to guide and simplify existing realities in order to make people understand the world better (Cloete and De Coning, 2011; Brynard et al. (1997). Essentially, models provide ideas that shape the world and influence change. The model in Figure 9.1 was deduced from the empirical findings of this study, the document analysis and the literature reviewed for the purpose of this study. Firstly, the model provides the interconnectedness between government, academia and the private sector (Etzkowitz & Leydesdorff, 1995; Leydesdorff & Zawdie, 2010; Leydesdorff, 2018). Secondly, it indicates how this interconnectedness can impact on the central issue of provincial planning and development. Lastly, it provides a picture of factors that can assist in R&D investment as well as achieving successful and impactful planning and development (Kalenov & Shavina, 2018; Cai & Etzkowitz, 2020).

The model indicates that meaningful and impactful planning and development are dependent on a quadripartite alliance between government, academia, civil society and the private sector as the key role players. This is mainly because these four parties have the common interest of ensuring, one, that the provinces are stable enough for the business sector to thrive and flourish and for business investment to take place; two, that government is able to live up to its mandate and create an environment that is conducive for socio-economic development and for the citizenry to be satisfied with the public goods and services provided and ultimately have an improved life and develop a trust in government, and three, that academia or universities are able to do their business of providing teaching and learning for the students, conducting basic and applied research to inform and shape the society and performing community engagement to impact the lives of the people. These four parties have one thing in common, which is to improve the lives of the people through creating socio-economic opportunities.

The model also puts an emphasis on the importance of the four parties coming together to invest in R&D and change the R&D landscape of the provinces and the country by ensuring that R&D activities are prioritized and funded. The prioritization of R&D will assist government to plan better and direct resources where they are needed the most, informed by evidence rather than thumb-sucking. The role played by government, the academia or universities, civil society and the private sector to advocate and promote the utilization of R&D for planning and development should not be underplayed, hence it is important for the parties to come together to prioritize and invest in R&D. Additionally, government should ensure that it plays a critical role in ensuring that it creates an enabling environment for this to occur through influencing and shaping the

policy landscape; hence, a political and administrative will and support are of paramount importance in this regard.

Based on the discoveries emanating from the study, the model identifies critical factors, both internal and external, that are needed to influence the role of R&D in planning and development. The internal factors refer to those that are specifically directed to government as the central role player and the coordinator of planning and development, and particularly the offices of the premier, due to the strategic role in provincial administration. These factors include the following:

- Financial resources availability;
- Skilled and equipped personnel;
- A policy landscape that will allow research and development to thrive. This may include having policies that embrace R&D collaborations, and policies that attract investment such as foreign direct investment from multinational corporations as well as investments from domestic corporations;
- Political will and support from executive authorities;
- Administrative will and support from accounting officers and other senior managers;
- Research infrastructure such as research hubs and well resourced laboratories;
- Research structures and systems to provide functional research in provinces;
- Research uptake that will translate into policy and practice through meaningful and impactful projects and programmes; and
- Innovation in areas of agriculture, indigenous knowledge systems, tourism and more, depending on the economic strengths of a province

The external factors are those outside the public administration or government that are reliant on external institutions, namely academia/universities and the private sector. These factors will enable the government to function better and successfully execute its mandate of improving the lives of the citizenry and transforming the society together with these key role players. These factors include the following:

- External expertise;
- Funding;
- Mutual benefits

- Financial and in-kind support, such providing skilled human resources that can be quantified;
- Attention to the socio-economic needs of the citizenry, such as basic needs, services, employment opportunities;
- Citizen-government trust, which should be earned through transparency and accountability by government;
- Stakeholder-government trust, which can be achieved through transparency and good communication strategies;
- Dissemination of research outcomes;
- Commercialisation of research products/outcomes; and
- Adaptation of research/innovation products/outcomes.

Internal factors identified in this model, such as the availability of resources, skilled human resources, an enabling policy landscape, political will, research infrastructure, research structures and systems and innovation were found to be critical factors to assist government to adopt R&D as a strategic tool for provincial planning and development. On the other hand, the external factors—forging research collaborations and partnerships, seeking external expertise, creating citizen-government and stakeholder-government trust, identifying the socio-economic needs of provinces, ensuring mutual beneficiation, getting financial and in-kind support from external parties, disseminating research outcomes to potential funders and partners, commercialisng research products and outcomes and ensuring that potential end-users adapt to new discoveries of research and innovation—can assist the academia/universities, civil society and the private sector to see their role as important actors in ensuring that the lives of the people are improved and transformed through R&D by ensuring that proper and informed planning and decision making in government takes place.

The findings of the study, specifically the views and perceptions of the respondents, have confirmed that for government to do better, it needs to do things differently and transform its existence, as highlighted by theories such as Public Management Reform Theory and New Public Management Theory. Consequently, the model developed in this study alludes to the fact that government should operate in a contemporary way and partner with different sectors to draw lessons for bettering operations in the public sector. Additionally, the theories adopted in this study, the NPM and PMR theories, are geared towards reforming and modernizing

government and administration and politics dichotomy (Omoyefa, 2008; Vyas-Doorgapersad, 2011; Van der Waldt, 2017). These theories concentrate on a paradigmatic perspective on classical and postmodern public administration (Mauri and Muccio, 2012). The study concurs with these theories by asserting that provincial administrations ought to prioritize and invest in R&D, simultaneously utilizing this strategic tool to inform planning and development in their respective operations. By so doing, the provincial administration will be moving away from the traditional way of operating towards a more modernized and transformed methods. Additionally, the study is also inclined towards grounded theory, which is focused on the knowledge construction and production aspect of research and its development process (De Villiers, 2005). Hence the study proposes the Model for Research and Development in Provincial Administration. This model is borrowed from the Triple Helix Model with additions, especially by adding the fourth sector of civil society and expatiating on the internal and external factors that are needed to make the collaborations and partnerships impactful and purposeful. The model supports the notion advanced in the Triple Helix (TH) Model by confirming that indeed the public sector cannot operate in isolation from other critical sectors in this knowledge economy. Each of these sectors in the model will be responsible for funding the partnership and collaborating in coming up with funding models to sustain their partnerships. Attracting foreign investors should also be explored as another funding mechanism.

9.4. POLICY RECOMMENDATIONS

In order for provincial administrations/governments to excel in planning and development an appropriate approach is critical. There has to be a change in how governments approach and address socio-economic challenges in their respective provinces as enshrined in provincial strategic plans. An enabling policy landscape to advocate and promote R&D is one of the key strategic tools that informs planning and decision making in government (Etzkowitz & Leydesdorff, 1995; Leydesdorff & Zawdie, 2010; Kalenov & Shavina, 2018). The findings of this study reveal that government has not been serious about placing R&D at the centre of planning and development activities. In areas wherein provinces understand the role of R&D in planning and development there are hindering factors such as political interference that halts the progress. Importantly, the research has also demonstrated that governments have relationships with the universities in their provinces, which is one of the most important elements in the R&D landscape that will influence planning and ensure that planning and development are informed

by research evidence. However, according to the findings, such relationships are not as solid as they should be although they are cordial. On the one hand you have governments and universities entering into partnerships through MOUs and MOAs; on the other hand, those relationships or partnerships do not yield any positive outcomes, mainly because they are not nurtured properly from the government's side. Nurturing these partnerships and relationships refers to having a policy landscape that can and will support the intentions of such partnerships and collaboration. This policy landscape should be in place and ensure that critical resources such as finances, human resources and time are injected into the processes and that the partnerships are not entered into for their own sake or for mere compliance but that they are impactful to the province and the entire citizenry. Currently, it appears that the policy landscape is not favourable to these partnerships; hence, there are few tangible deliverables, especially in Limpopo and North West, although Gauteng Province has seen some strides through its partnerships with the Universities of Johannesburg and the Witwatersrand through the Gauteng City Region Observatory (GCRO). It is against this background that the following recommendations are proffered for the improvement of the R&D landscape for planning and development in the provinces of Limpopo, Gauteng and North West and possibly other provinces in South Africa as well.

Firstly, the status quo regarding the role of R&D in planning and development in provincial administration needs great improvement in order for provinces to be effective and efficient in addressing socio-economic challenges facing them. As highlighted in the preceding chapters, impactful planning and development would require that government instill the culture of using research evidence for its planning activities and that this process should be accompanied by financial resource availability and skilled and adequate human resources. Provincial administrations should invest sufficiently in R&D. Additionally, the implications of investing in R&D is that government will be ensuring that both soft and hard infrastructure are available. Soft infrastructure refers to services required to ensure that the functioning of R&D is maintained whereas hard infrastructure refers to tangible or physical structures and systems. Both of these infrastructures would have information infrastructure or technology linking them.

Secondly, there is a dire need for government to enter into functional research collaborations or partnerships with universities and the private sector. The findings demonstrate that currently government has entered into various forms of partnerships with universities. However, these

partnerships are not impactful. There is a need for government and the universities to go back to the drawing board and revisit these partnerships with the aim of making them more workable. Importantly, government should also capitalize on entering into partnerships with the private sector and bringing this sector on board to build a partnership that will create an enabling environment for R&D investment to occur. These selected provinces have many businesses operating in their vicinity, most of which are multi-national corporations. It is about time that these businesses are brought on board as investors in R&D and creators of opportunities to solve existing challenges in the provinces. Having the business or private sector on board will also contribute towards planning and development activities that will eventually curb the triple challenges as enshrined in the provincial strategic plans and the National Development Plan 2030 (NDP, 2012).

Thirdly, there is a need to change the policy landscape in provincial administrations. It will be a futile exercise if the preceding recommendations happen without the policy landscape being changed. Government must create an enabling policy environment which will see R&D and planning and development initiatives thriving. It is only through policies that the status quo can be changed and channeled progressively. R&D policies and planning policies should provide a clear framework for using research as a strategic tool for planning and development. To take this a step further, national government through the Department of Planning and Monitoring and Evaluation must pave the way and make it compulsory for R&D to be put at the heart of all planning initiatives. In fact, the national government must appreciate and recognize the uniqueness of each province and make sure that it supports them, especially rural provinces and those that are marred by service delivery challenges. The DPME must enforce a synergy of research forums and planning forums in provinces. Additionally, the Department of Planning and Monitoring and Evaluation (DPME) and Department of Science and Innovation (DSI) should consider establishing platforms in the form of a national research forum and national planning forum that bring together researchers and planners in one space. Additionally, the provincial research forums and planning forums can thereby get their mandates from the DPME and DSI national research and planning forums. In this way the provincial forums can be coordinated from the national level. It is in these forums that provinces will draw lessons from each other and learn from the national level as well.

Fourthly, there is a need for integration of the directorates within the offices of the premier and between the offices of the premier and sector departments. The findings reveal that directorates in the offices of the premier have for long been operating in silos, hence research forum and planning forums are not moving in the same direction. Furthermore, this silo mentality has resulted in most planning activities and developments of provincial strategic plans not relying on research evidence.

Lastly, the findings revealed that directorates within selected offices of the premier adopt different planning approaches during their planning processes. Provincial administration should consider using uniform and standardized planning approaches rather than having each directorate adopt planning approaches as they see fit. Furthermore, it is recommended that directorates should consider having meta-planning processes that will result in directorates in the offices of the premier devising plans in preparation for an overall planning process that takes place at a departmental and provincial level in the form of strategic planning sessions. This can be seen as structured brainstorming, where all role players within directorates can provide their ideas on how to plan better going forward; this has the advantage of fostering ownership of ideas among team players.

9.5 CONCLUSION OF THE CHAPTER

This chapter provided the conclusions of the study based on the objectives and research questions in Chapter 1. The major conclusion of the study is that R&D is significant for planning and development in provincial administration, and it should from henceforth be at the heart of planning. Furthermore, provincial administration/government should consider adopting R&D as a strategic tool and prioritise it as such. The study has found out that different strategic directorates in offices of the premier use different planning approaches and as a result there is no uniformity in planning processes. Importantly, the study concludes that there is a need to have common and uniform planning approaches in the offices of the premier and ultimately in sector departments. Notably, the study has also revealed that there is a need for government and academia to have workable, functional and impactful relationships and partnerships. The findings also reveal that the current partnerships are not as impactful as they should be and that this lack of impact is linked to a lack of resources and political will, and a rigid policy landscape that makes it difficult for R&D partnerships and R&D initiatives to thrive.

These conclusions prompted the development of the R&D model for planning and development, which is a salient contribution of the study to the body of knowledge and to practice. The model will provide great value to academia and practice. On the one hand, the study will add to literature on the importance of the phenomenon of R&D in planning and development processes of provincial and possibly local administrations; on the other hand it will assist governments on some of the important factors that need to be adopted to improve the R&D landscape in their provinces and localities as well as the benefits and opportunities that come with using R&D as a strategic tool for planning and development. The model provides key internal and external factors that are needed for R&D to thrive as a strategy. including the following: financial resources: skilled and equipped personnel, a policy landscape, political will and support, administrative will and support, research infrastructure, research structure and systems, research uptake and innovation. The external factors include the following: external expertise, mutual benefits, financial and in-kind support, socio-economic needs, citizen-government trust, dissemination of research outcomes, commercialisation of research products/outcomes and adaptation of research/innovation products/outcomes.

9.6 FUTURE RESEARCH

This research focused on only three provinces in South Africa and particularly on their provincial administrations. Although the results and findings of this study provide insight and shed light on the current state of affairs in provinces on the relationship between R&D and planning and the role R&D plays in planning and development, it is apparent that more still needs to be done to ensure that R&D is prioritized. The research also revealsfgt that there is dearth of literature on this phenomenon, both at provincial and local administrations/government levels. The existing literature is more concentrated on the national level, hence there is a need for future research to close this literature gap.

9.7. RESEARCH OUTPUTS

The researcher has managed to publish a paper as a way of disseminating research to a wider community of researchers. Together the researcher and her supervisor published a paper in the European Journal of Economics, Law and Social Sciences (EJELS), entitled: “The Nexus between Public Service and Research, Development and Innovation in South Africa: A Public Reform Strategy”. This paper was also presented at the International Conference of the

International Association of Schools and Institutes of Administration (IASIA) in 2021. Furthermore, the researcher has submitted a manuscript to the Journal of Asian and African Studies (JAAS) the title of which is “Research and Development Collaborations within the Context of a South African Developmental State”. At this point the researcher is working on inputs from JAAS reviewers. Another manuscript entitled “Research and Development Funding and Investment for Planning and Development within South Africa’s Provincial Administration: A Priority or an Afterthought?” has been submitted to The Journal of Transdiciplinary Research in Southern Africa, the researcher is contemplating submitting this manuscript to other journals as well. This manuscript emanates from the pilot study conducted during the phase of piloting the data collection instruments and therefore presents those findings. The last two papers have been presented at South African Association of Public Administration and Management (SAAPAM) conferences and these platforms have assisted the researcher to shape the manuscripts for potential publications. Additionally, in July 2023 the researcher presented a paper at the Brazil, Russia, India, China and South Africa (BRICS) and National School of Government (NSG) conference, the paper is entitled “Research and Development Funding Patterns in BRICS Countries: Policy Lessons for South Africa’s Provincial Administration”. In September 2023 the researcher will be presenting another paper entitled “A model for Research and Development in South Africa’s Provincial Admninistration” at the SAAPAM conference.

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ANNEXURE A: DATA COLLECTION TOOL- INTERVIEW SCHEDULE FOR OFFICE OF THE PREMIER OFFICIALS

Title: A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces.

SECTION A: BIOGRAPHIC PROFILE OF THE RESPONDENT

1. Department/Institution of the respondent

2. Directorate of the respondent

3. Gender of respondent

Male	
Female	
Other	

4. Age of respondent

20-30 years	
31-40 years	
41-50 years	
51 and above	

5. Highest qualification of the respondent

Matric	
Diploma	
Degree	
Honours Degree	
Master's Degree	
Doctoral Degree	
Postdoctoral Degree	
Others (Please specify)	

6. Position of respondent

Assistant Director	
Deputy Director	
Director	
Chief Director	
Deputy Director General	
Director General	
Others (Please specify)	

7. For how long have you been an employee in this department/institution?

Less than a year	
1-3 years	
4-6 years	
7 years and above	

8. In which province do you work? ----------

ANNEXURE A: DATA COLLECTION TOOL- INTERVIEW SCHEDULE

SECTION B: PROBING OFFICES OF THE PREMIER OFFICIALS

Title: Title: Towards a research and development model for planning and development in South Africa's provincial administration: A case of selected provinces.

1. What is the role of research and development in your directorate?

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2. What is the role of research and development in the provincial administration/government?

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3. How effective is the provincial research forum/structure on research and development in the provincial administration?

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4. How effective is the provincial research forum/structure on planning and development (including policy processes) in the provincial administration/government?

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5. What planning approaches does your directorate adopt to achieve the mandate of the provincial administration/ government?

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6. How does provincial administration approach it's planning and development processes?

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7. How does provincial research and development activities influence planning and development processes in the provincial administration/government?

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8. What is the provincial administration/government's position on the investment and funding for R&D in the provincial administration/government?

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9. How is the level of R&D investment in the provincial administration?

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10. In your own understanding what should be motivating factors for provincial administration/government to invest in R&D?

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11. Based on your experience, what are the challenges faced by the provincial administration/government with regards to planning and development?

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12. In the space provided below, kindly add any comment that you think may enhance the functioning of the provincial administration/government as far as R&D issues are concerned.

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ANNEXURE B: DATA COLLECTION TOOL- INTERVIEW SCHEDULE FOR RESEARCH FORUM/STRUCTURE MEMBERS

Title: A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces.

SECTION A: BIOGRAPHIC PROFILE OF THE RESPONDENT

1. Institution of the respondent

2. Directorate of the respondent

3. Gender of respondent

Male	
Female	
Other	

4. Age of respondent

20-30 years	
31-40 years	
41-50 years	
51 and above	

5. Highest qualification of the respondent

Matric	
Diploma	
Degree	
Honours Degree	
Master's Degree	
Doctoral Degree	
Postdoctoral Degree	
Others (Please specify)	

6. Position of respondent

Assistant Director	
Deputy Director	
Director	
Chief Director	
Deputy Director General	
Director General	
Others (Please specify)	

7. Are you involved in research and development work in your institution?

Yes	
No	

8. If yes, for how long have you been involved in research and development work in your institution?

Less than a year	
1-3 years	
4-6 years	
7 years and above	

9.

9. For how long have you been a member of the provincial research forum/structure?

Less than a year	
1-3 years	
4-6 years	
7 years and above	

10. In which province do you work? ----------

ANNEXURE B: DATA COLLECTION TOOL- INTERVIEW SCHEDULE

SECTION B: PROBING PROVINCIAL RESEARCH FORUM MEMBERS

Title: Towards a research and development model for planning and development in South Africa's provincial administration: A case of selected provinces.

1. What is the role of the provincial research forum/structure on research and development (R&D) in the provincial administration?

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2. What is the role of the provincial research forum/structure on planning and development in the provincial administration/government?

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3. How effective is the provincial research forum/structure on research and development in the provincial administration/government?

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4. How effective is the provincial research forum/structure on planning and development in the provincial administration/government?

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5. How does the provincial research forum/structure influence planning and development in the provincial administration/government?

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6. To what extent is the research forum/structure involved in planning and development of the provincial administration/government

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7. What is the provincial government's position on the investment and funding for R&D in the provincial administration/government?

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8. In your own understanding what should be motivating factors for provincial administration/government to invest in R&D?

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9. Based on your experience what are the challenges faced by the provincial research forum/structure in the provincial administration/government?

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10. In the space provided below kindly add any comment that you think may enhance the functioning of research forum/structure in the provincial administration/government?

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ANNEXURE C: DATA COLLECTION TOOL- INTERVIEW SCHEDULE FOR REPRESENTATIVES OF UNIVERSITIES

Title: A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces.

SECTION A: DEMOGRAPHIC PROFILE OF THE RESPONDENT

1. Institution of the respondent

2. Directorate of the respondent

3. Gender of respondent

Male	
Female	
Other	

4. Age of respondent

20-30 years	
31-40 years	
41-50 years	
51 and above	

5. Highest qualification of the respondent

Matric	
Diploma	
Degree	
Honours Degree	
Masters Degree	
Doctoral Degree	
Postdoctoral Degree	
Other (Please specify)	

6. Position of respondent (please specify)

Director	
Deputy Vice-Chancellor	
Vice-Chancellor	
Other (Please Specify)	

7. For how long have you been an employee in this institution?

Less than a year	
1-3 years	
4-6 years	
7 years and above	

8. In which province do you work? ----------

ANNEXURE C: DATA COLLECTION TOOL- INTERVIEW SCHEDULE

SECTION B: PROBING REPRESENTATIVES OF UNIVERSITIES

Title: Towards a research and development model for planning and development in South Africa's provincial administration: A case of selected provinces.

1. What is the role of the university in research and development (R&D) in the provincial administration/government?

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2. What is the role of the university in planning and development in the provincial administration/government?

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3. Describe the relationship between the university and the provincial administration?

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4. What forms the basis for the relationship to exist?

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5. How effective is the relationship between the university and the provincial administration/government?

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6. What beneficence does the university get from its relationship with the provincial administration/government?

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7. In your own understanding, what is the level of investment and funding for R&D by the provincial administration/government?

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8. In your own understanding what should be motivating factors for provincial administration/government to invest in R&D?

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9. Based on your experience what are the challenges faced by the university when dealing with the provincial administration?

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10. In the space provided below, kindly add any comment that you think may enhance the relationship between the university and the provincial administration/government as far as R&D, planning and development issues are concerned.

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ANNEXURE D: INFORMATION SHEET AND CONSENT FORM

Tshwane University of Technology

We empower people

FACULTY OF HUMANITIES

DEPARTMENT OF PUBLIC MANAGEMENT

PROJECT TITLE: A RESEARCH AND DEVELOPMENT MODEL FOR PLANNING AND DEVELOPMENT IN SOUTH AFRICA'S PROVINCIAL ADMINISTRATION: A CASE OF SELECTED PROVINCES.

Primary investigator: **Ms M.J Mokgokong, Masters, MADM (UL), Tshwane University of Technology, Soshanguve Campus.**

Study leader: **Prof MH Maseremule, Dlitt et Phil (UNISA), Department of Public Management, Tshwane University of Technology, Soshanguve Campus**.

Co-study leader: **Dr R.M Mukonza, D.Tech, Department of Public Management, Tshwane University of Technology, Polokwane Campus.**

Dear Potential research participant,

You are invited to participate in a research study that forms part of my formal Doctor of Public Affairs. This information leaflet will help you to decide if you would like to participate. Before you agree to take part, you should fully understand what is involved. You should not agree to take part unless you are completely satisfied with all aspects of the study.

WHAT IS THE STUDY ALL ABOUT?

The study is entitled "A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces". The main objectives of the study are as follows:

- To investigate the role of research and development in provincial planning and development;
- To identify and assess the approaches for planning and development in the Provincial Government;
- To analyse approaches for planning and development in the Provincial Government;

- To identify and analyse challenges faced in provincial planning and development;
- To study the level of investment and funding on research and development in provincial administration?
- To study and analyse the determining factors of R&D investments and funding; and
- To develop a research and development model for South Africa's provincial administration.

WHAT WILL YOU BE REQUIRED TO DO IN THE STUDY?

Participants will be required to:

1) Voluntarily complete and return the questionnaire and interview schedule

2) The study will take no more than 30 minutes of the participants` time

3) The study will only be used in complete fulfilment of the requirements for the Doctorate in Public Affairs at Tshwane University of Technology

4) Participants will not be required to pay in order to participate in the study neither will they be paid or rewarded for participating

5) The researcher will conduct the study at respondent's preferred time and venue as a result the participants will not incur travelling cost or accommodation or alternatively due to the COVID-19 pandemic the researcher may email the questionnaire and interview schedule for the participant to complete and return.

If you decide to take part in the study, you will be required to do the following:

- To read through the information leaflet and understand what the study entails and it aims to achieve
- To sign this informed consent form and

ARE THERE ANY CONDITIONS THAT MAY EXCLUDE YOU FROM THE STUDY?

The researcher will not proceed with the participant should it be discovered that the participant does not have detailed knowledge of the subject at hand;

The researcher will not proceed with the study if the participant is no longer comfortable with participating in the study.

CAN ANY OF THE STUDY PROCEDURES RESULT IN PERSONAL RISK, DISCOMFORT OR INCONVENIENCE?

Questionnaires: The study does not involve any foreseeable physical discomfort, personal risk or any inconvenience to you or your family. Due to the nature of the questions it is not anticipated that you will

experience some emotional discomfort but should it be the case the researcher will make efforts to request the assistance of your institutional health and wellness officials to intervene.
Physical exhaustion: The nature of the study does not result in physical exhaustion of the participants.

Emotionally sensitive interviews: In the interview/s you will be sharing information about your involvement and experiences in the subject matter on **"A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces".**

Minimal risk/discomfort/inconvenience: Participation in the study involves minimal risks, discomforts and/or inconveniences that are no more than the risks, discomforts and/or inconveniences one encounter in daily living.

WHAT ARE THE POTENTIAL BENEFITS THAT MAY COME FROM THE STUDY?

The results and findings of the study will not have any direct benefits to you, however they may ignite conversations about the subject studied and also contribute towards a better understanding about a phenomenon of the significance of research and development in planning and development in South Africa's provincial administration.

WILL YOU RECEIVE ANY FINANCIAL COMPENSATION OR INCENTIVE FOR PARTICIPATING IN THE STUDY?

Please note that you **will not** be paid to participate in the study.

WHAT ARE YOUR RIGHTS AS A PARTICIPANT IN THIS STUDY?

Your participation in this study is entirely voluntary. You have the right to withdraw at any stage without any penalty or future disadvantage whatsoever. You don't even have to provide the reason/s for your decision to withdraw. Note that you are not waiving any legal claims, rights or remedies because of your participation in this research study.

HOW WILL CONFIDENTIALITY AND ANONYMITY BE ENSURED IN THE STUDY?

All information obtained during the course of this study is strictly confidential. The study data will be coded so that it will not be linked to your name. Your identity will not be revealed while the study is being conducted or when the study is reported in scientific journals. All the data sheets that have been collected will be stored in a secure place. Any information that is obtained in connection with this study

and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. The information received during the project will only be used for research purposes and not be released for any employment-related performance evaluation, promotion and/or disciplinary purposes.

IS THE RESEARCHER QUALIFIED TO CARRY OUT THE STUDY?

The researcher is a doctoral candidate of Public Affairs at Tshwane University of Technology and is a former lecturer at the University of Limpopo who has an extensive experience on conducting researcher. Moreover, the researcher is a deputy director at the Limpopo Office of the Premier under the Research and Development Directorate, and on a daily basis works with issues on research. Therefore, the researcher is qualified and adequately trained on research matters.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

Yes, the researcher has been granted ethical clearance by the Faculty of Humanities Research Ethics Committee of the Tshwane University of Technology and at the provincial level by the Limpopo Provincial Research Ethics Committee. All parts of the study will be conducted according to internationally accepted ethical principles.

WHO CAN YOU CONTACT FOR ADDITIONAL INFORMATION REGARDING THE STUDY?

The primary investigator, Ms M.J Mokgokong can be contacted during office hours at Tel (015) 230 9049, or on her cellular phone at 073 018-6048/ 066 487-1673. The supervisor, Prof M.H Maserumule can be contacted on MaseremuleMH@tut.co.za and Dr R.M Mukonza can be contacted on MukonzaRM@tut.ac.za. Should you have any questions regarding the ethical aspects of the study, you can contact the chairperson of the TUT Faculty of Humanities Research Ethics Committee, Prof A Mji, during office hours at Tel (012) 382-9933, E-mail MjiA@tut.ac.za , Alternatively, you can report any serious unethical behaviour at the University's Toll Free Hotline 0800 21 23 41.

DECLARATION: CONFLICT OF INTEREST

There will be no conflict of interest that may influence the study procedures, data collection, data analysis, and publication of results. The researcher has no financial support for this study. The final results of the study will be published after the director of Tshwane University of Technology has given written approval of the research project.

A FINAL WORD

Your co-operation and participation in the study will be greatly appreciated. Please sign the informed consent below if you agree to participate in the study. In such a case, you will receive a copy of the signed informed consent from the researcher.

CONSENT

I hereby confirm that I have been adequately informed by the researcher about the nature, conduct, benefits and risks of the study. I have also received, read and understood the above written information. I am aware that the results of the study will be anonymously processed into a research report. I understand that my participation is voluntary and that I may, at any stage, without prejudice, withdraw my consent and participation in the study. I had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study.

Research participant's name: _____ (Please print)

Research participant's signature: _____

Date: _____

Researcher's name: Madikana Jackinah Mokgokong _____ (Please print)

Researcher's signature: _____

Date: _____

VERBAL CONSENT

(Applicable when participants cannot read or write)

I hereby declare that I have read and explained the contents of the information sheet to the research participant. The nature and purpose of the study were explained, as well as the possible risks and benefits of the study. The research participant has clearly indicated that he/she is aware of the right to withdraw from the study at any time, for any reason and without jeopardizing his/her relationship with the research team. I hereby certify that the research participant has verbally agreed to participate in this study.

Research participant's name: _____(Please print)

Researcher's name: Madikana Jackinah Mokgokong (Please print)

Researcher's signature: _____

Date: _____

CONSENT

I hereby confirm that I have been adequately informed by the researcher about the nature, conduct, benefits and risks of the study. I have also received, read and understood the above written information. I am aware that the results of the study will be anonymously processed into a research report. I understand that my participation is voluntary and that I may, at any stage, without prejudice, withdraw my consent and participation in the study. I had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study.

Research participant's name: _____ (Please print)

Research participant's signature: _____

Date: _____

Researcher's name: _____ (Please print)

Researcher's signature: _____

Date: _____

VERBAL CONSENT

(Applicable when participants cannot read or write)

I hereby declare that I have read and explained the contents of the information sheet to the research participant. The nature and purpose of the study were explained, as well as the possible risks and benefits of the study. The research participant has clearly indicated that he/she is aware of the right to withdraw from the study at any time, for any reason and without jeopardizing his/her relationship with the research team. I hereby certify that the research participant has verbally agreed to participate in this study.

Research participant's name: _____ (Please print)

Researcher's name: _____ (Please print)

Researcher's signature: _____

Date: _____

ANNEXURE E: NWU GATEKEEPERS RESPONSE

Private Bag X6001, Potchefstroom
South Africa 2520

Tel: +2718 299-1111/2222
Web: http://www.nwu.ac.za

Research Data Gatekeeper Committee

14 July 2022

Dear M.J Mokgokong

I hope you are well. The RDGC has reviewed your application and provided the following feedback.

NWU RDGC Feedback	Response from Researcher
The committee requires the researcher to indicate the specific prospective participant they would like to engage with at the NWU. The NWU does not have a researcher and development director within its structures.	[Please provide clarity on the committee's feedback here]
The Committee cannot identify participants for the researcher. They researcher must orientate him/herself with the NWU organogram and identify the prospective participants they would like to participate in their study.	
If the contact details of the prospective participants are not publicly available, the researcher would need to indicate to the committee how will the researcher invite prospective participants.	
It is important to note that no contact details or any personal information of NWU stakeholders will be provided to the researcher during the invitation process of the study.	
Any documents or agreements between any structure of government and the NWU may not be provided to the researcher if the agreement or documents are not publicly available at present.	

Please provide feedback to the above by 19th July 2022

Your Sincerely

Nkosinathi Machine

Research Ethics Support Coordinator

016 910 3446
nkosinathi.machine@nwu.ac.za

ANNEXURE F: NWU GATEKEEPERS APPLICATION

Private Bag X6001, Potchefstroom
South Africa 2520

Tel: +2718 299-1111/2222
Web: http://www.nwu.ac.za

Research Data Gatekeeper Committee

14 July 2022

Dear Chairperson NWURDGC

I hope you are well. The RDGC has reviewed your application and provided the following feedback.

NWU RDGC Feedback	**Response from Researcher**
The committee requires the researcher to indicate the specific prospective participant they would like to engage with at the NWU. The NWU does not have a researcher and development director within its structures.	The researcher will engage Director: Research Support in the North West University **or any other person delegated by the Director: Research Support**.
The Committee cannot identify participants for the researcher. They researcher must orientate him/herself with the NWU organogram and identify the prospective participants they would like to participate in their study.	Thank you for the input. The researcher has familiarised herself with the organogram on the university website.
If the contact details of the prospective participants are not publicly available, the researcher would need to indicate to the committee how will the researcher invite prospective participants. It is important to note that no contact details or any personal information of NWU stakeholders will be provided to the researcher during the invitation process of the study.	The researcher will rely on the Director: Research Support and the university to provide the name of the prospective participant whose contact details are already in the public domain. The researcher will also ensure that during this process of invitation to participate in the study the POPI Act is not infringed in any way.
Any documents or agreements between any structure of government and the NWU may not be provided to the researcher if the agreement or documents are not publicly available at present.	The researcher will only require documents that are already in the public domain and not any classified document will be sought from the university.

Please provide feedback to the above by 19th July 2022

Your Sincerely
Nkosinathi Machine

Research Ethics Support Coordinator
016 910 3446
nkosinathi.machine@nwu.ac.za

ANNEXURE G: LPRC APPROVAL LETTER

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

OFFICE OF THE PREMIER

TO: MS SETE S

FROM: DR T MABILA

ACTING CHAIRPERSON: LIMPOPO PROVINCIAL RESEARCH COMMITTEE (LPRC)

DATE: FEBRUARY 2021

SUBJECT: A RESEARCH AND DEVELOPMENT MODEL FOR PLANNING AND DEVELOPMENT IN SOUTH AFRICA'S PROVINCIAL ADMINISTRATION: A CASE OF SELECTED PROVINCES.

RESEARCHER: MOKGOKONG MJ

Dear Colleague

The above researcher's research proposal served at the Limpopo Provincial Research Committee (LPRC). The committee is satisfied with the methodological soundness of the proposed study.

Decision: The research proposal is granted full research approval.

Regards

Acting Chairperson: Dr T Mabila

Secretariat: Ms J Mokobi

Date: 15/03/2021

ANNEXURE H: LPREC APPROVAL LETTER

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

OFFICE OF THE PREMIER

TO: MS SETE S

FROM: DR T MABILA

CHAIRPERSON: LIMPOPO PROVINCIAL RESEARCH ETHICS COMMITTEE (LPREC)

DATE: FEBRUARY 2021

SUBJECT: A RESEARCH AND DEVELOPMENT MODEL FOR PLANNING AND DEVELOPMENT IN SOUTH AFRICA'S PROVINCIAL ADMINISTRATION: A CASE OF SELECTED PROVINCES.

RESEARCHER: MOKGOKONG MJ

Dear Colleague

The above researcher's research proposal served at the Limpopo Provincial Research Ethics Committee (LPREC). The ethics committee is satisfied with the ethical soundness of the proposal.

Decision: The research proposal is granted full approval and ethical clearance.

Regards

Acting Chairperson: Dr T Mabila

Secretariat: Ms J Mokobi

Date: 15/03/2021

ANNEXURE I: RESEARCH ETHICS CERTIFICATES

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

OFFICE OF THE PREMIER

Office of the Premier

Research and Development Directorate

Private Bag X9483, Polokwane, 0700, South Africa

Tel: (015) 230 9910, Email: mokobij@premier.limpopo.gov.za

LIMPOPO PROVINCIAL RESEARCH ETHICS

COMMITTEE CLEARANCE CERTIFICATE

Meeting: **February 2021**

Project Number: LPREC/24/2021: PG

Subject: A Research and Development Model for Planning and Development in South Africa's Provincial Administration: A Case of Selected Provinces.

Researcher: Mokgokong MJ

Dr Thembinkosi Mabila

Chairperson: Limpopo Provincial Research Ethics Committee

The Limpopo Provincial Research Ethics Committee (LPREC) is registered with National Health Research Council (NHREC) Registration Number **REC-111513-038.**

Note:

i. **This study is categorized as a Low Risk Level in accordance with risk level descriptors as enshrined in LPREC Standard Operating Procedures (SOPs)**

ii. **Should there be any amendment to the approved research proposal; the researcher(s) must re-submit the proposal to the ethics committee for review prior data collection.**

iii. **The researcher(s) must provide annual reporting to the committee as well as the relevant department and also provide the department with the final report/thesis.**

iv. **The ethical clearance certificate is valid for 12 months. Should the need to extend the period for data collection arise then the researcher should renew the certificate through LPREC secretariat. PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRIES.**

Tshwane University of Technology

Faculty Committee for Research Ethics – Humanities [FCRE-HUM]

The TUT Research Ethics Committee is a registered Institutional Review Board (IRB 00005968) with the US Office for Human Research Protections (IORG# 0004997) (Expires 30 Jan 2020). Also, it has Federal Wide Assurance for the Protection of Human Subjects for International Institutions (FWA 00011501). In South Africa it is registered with the National Health Research Ethics Council (REC-160509-21).The FCRE-HUM is a subcommittee of the Senate Committee for Research Ethics

01 DECEMBER 2020

Ref #: FCRE/PM/STD/2020/16

Name: Mokgokong, M.J.Student #: 221244818

Mokgokong, M.J.
C/o Prof. M.H. Maserumule
Department of Public ManagementFaculty of Humanities

Dear Ms./Mr. Mokgokong, M.J.

Decision: The application be approved

Title: **A research and development model for planning and development in South Africa's provincialadministration: A case of selected provinces**

Investigator: Mokgokong, M.J. Qualification: Doctor of Public AffairsSupervisor:

Prof. M.H. Maserumule Co-

supervisor: Dr. R.M. Mukonza

Co-supervisor: None

Thank you for submitting your proposal for ethics clearance.

In reviewing the proposal, the following comments/notes, emanating from the meeting are tabled for your consideration/attention/notification:

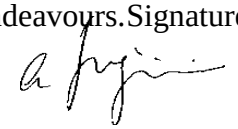
- The study aims to develop a research and development model for planning and development in SouthAfrica's Provincial Administration. It is not an ethically sensitive topic.
- The Ethics Checklist and Ethics Declaration have been submitted and are in order.
- The Information Leaflet and informed consent documentation have been submitted and are in order.
- A Cover Letter for a Survey Questionnaire has been submitted and is in order,
- The research proposal is in order.
- The interview schedule has been submitted and is in order.
- The questionnaires have been submitted and are in order.

- Draft letters asking for permission to conduct the research has been provided. As soon as an official letter granting permission for the research to be conducted has been received, it should be provided to the FCREfor the FCRE's records.
- Recommend: Approval

The Faculty of Humanities Research Ethics Committee reviewed the documents at its meeting on 11 November 2020. The study is **recommended for approval**

The Committee wishes you well with your research

endeavours.Signature



01 DECEMBER 2020

Chair / Deputy-Chair
Faculty Research Ethics
Committee[Ref#:
FCRE/PM/STD/2020/16]

Cc Prof. M.H. Maserumule; Dr. M.R. Mukonza


PROUDLY SOUTH AFRICAN

Tshwane University of Technology
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FACULTY OF HUMANITIES

DEPARTMENT OF PUBLIC MANAGEMENT

Arrangement for Ms MJ Mokgokong to carry out his study in Limpopo Provincial Government

This is to confirm that Ms MJ Mokgokong with student number 221244818 is a registered Doctoral student at Tshwane University of Technology, Department of Public Management. The requirement of this qualification is that candidates conduct research for a dissertation on topics related to public affairs, with the guidance of their supervisors. As a University of Technology, we encourage research that has utilitarian value or informs policy praxis. Ms Mokgokong's Doctoral research proposal was accepted on the basis of its full compliance with this expectation. She is conducting research entitled; **Towards a Research and Development Model for Planning and Development in South Africa's Provincial Administration: A Case of Selected Provinces**

The nature of the study requires that Ms Mokgokong gather primary data from officials in the Provincial Government. She uses interviews for this purpose, for which I humbly request the relevant authority in the Provincial Government to give her permission to engage the officials. The information obtained will be used solely for the purpose of this study and respondents' confidentiality will not be disclosed, unless with their permission or as required by law. The research will ensure that no one is harmed or suffer adverse consequences from the research activities. The ethics committee of Tshwane University of Technology cleared and approved Ms Mokgokong' s interview schedule in terms of appropriateness.

Looking at the purpose of Ms Mokgokong' s study, I have no doubt in my mind that, upon its completion, it will make a significant contribution to the body of knowledge especially as it relates to provincial planning and research and development. For further information, please do not hesitate to contact the undersigned.

Kind Regards

Dr Ricky Munyaradzi Mukonza (Supervisor)

Contact details: Tel: +2715 287 0730 Email: MukonzaRM@tut.ac.za Cell: +2774 503 7780

Tshwane University of Technology

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FACULTY OF HUMANITIES

DEPARTMENT OF PUBLIC MANAGEMENT

Dear Sir/Madam

RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH IN THE LIMPOPO PROVINCIAL GOVERNMENT

This letter serves to request a permission to conduct a research within the Limpopo Provincial Government.

I am registered doctoral candidate at Tshwane University of Technology perusing a Doctoral Degree in Public Affairs under the Faculty of Humanities. My research is entitled **"Towards a research and development model for planning and development in South Africa's provincial administration: A case of selected provinces".**

The study seeks to establish if the provincial administrations adequately and sufficiently invest and provide funding for research and development activities. Furthermore, the study seeks to create the basis for the significance of research and development to be put at the centre of planning and development in provincial administration. This research is a qualitative study and it requires me to interview and gather primary data from relevant officials within the Provincial Government. It is within this context that I humbly request that the Accounting Officer of the Provincial Government give me a permission to conduct the study within their facilities.

The study will be conducted under the supervision of Prof MH Maserumule and Dr RM Mukonza. For more information kindly contact my supervisors at MaserumuleMH@tut.ac.za and MukonzaRM@tut.ac.za.

Looking forward to your positive response.

Yours Sincerely

Ms Madikana Jackinah Mokgokong
Student Number: 221244818

ANNEXURE J: APPLICATION FOR PERMISSION LETTERS IN PROVINCES

CONFIDENTIAL

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

OFFICE OF
THE PREMIER

Ref : S5/3/43
Enq : Ms M.L Phahladira
Date : 12 APRIL 2021

Ms. M.J. Mokgokong
Private Bag x 9483
POLOKWANE
0700

Dear Madam

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN THE OFFICE OF THE PREMIER: YOURSELF

1. It is with great pleasure to inform you that your request to conduct research study titled "Towards a research and development model for planning and development in South Africa's provincial administration: A case of selected provinces" has been approved on condition that information gathered will be treated as confidential, be used for academic purposes and only be disclosed with a written permission from the Office.

2. You are also requested to submit a copy of your research report to this Office as soon as you complete your qualification.

3. Wishing you the best with your studies.

Mr N.S. NCHABELENG
DIRECTOR GENERAL

13/04/2021
DATE

Mowaneng Building, 40 Hans Van Rensburg Street. POLOKWANE, 0700, Private Bag X9483, POLOKWANE, 0700
Tel: (015) 287 6000, (015) 287 6999, Fax: (015) 295 3840 Website: http/www.limpopo.gov.za

The heartland of Southern Africa - development is about people!

GAUTENG PROVINCE
OFFICE OF THE PREMIER
REPUBLIC OF SOUTH AFRICA

SUBMISSION

Enq: Ms M Motlhabane
Tel: (011) 355 600

DECLARATION

I, Motgokong MJ .....hereby declare that as an ethical researcher I shall abide by the following:

- To execute the academic research in a scientific and ethically responsible way;
- To act in honest manner towards my research;
- Not to use and/or apply the research and information in a manner that is detrimental to the Gauteng Office of the Premier or other persons or outside institutions unless it can be scientifically-academically justified;
- To ensure that the results of the research will be used for academic purposes only; and
- To submit, after successfully completion of the research, an electronic copy of the dissertation to the Office of the Premier.

I fully understand that failure to submit the copy of the mini dissertation may result in permission being withheld from the student, supervisor and academic institution in future.

By signing this declaration, I accept the conditions associated with the granting of approval to conduct research in the Gauteng Office of the Premier.

Yours faithfully,

.....
Name of applicant:
Student number: 22124818
Date: 04/03/2021

Tshwane University of Technology

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RESEARCH ETHICS PROGRESS REPORT
HUMAN RESEARCH ETHICS[1]

IMPORTANT NOTES:

1. **The formal ethics approval of all research projects need to be renewed on an annual basis.**
2. More frequent progress reports may occasionally be requested if the Research Ethics Committee (REC) deems the project to be of particularly high risk.
3. This Research Ethics Progress Report constitutes an application for such ethics approval renewal.
4. No research may continue after the ethics approval expiry date indicated on the formal Research Ethics Committee approval letter.
5. The completed progress report should contain sufficient information to allow the REC to conduct a substantive and meaningful review of the progress of the project, including any ethics-related challenges or problems encountered.
6. A copy of this report must be submitted to the relevant Faculty Research Officer to serve at the relevant Faculty Higher Degrees Committee (FHDC) for notification.
7. The content of this report will be treated under the REC's usual confidentiality regulations.

Surname and Initials of Primary researcher or Student:	Ms Madikana Jackinah Mokgokong
Project title and Qualification (indicate "Non-degree project" when not for post-graduate degree qualification):	**A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces**
TUT Research Ethics Reference Number:	FCRE/PM/STD/2020/16
Date of Final TUT Research Ethics Approval:	01 December 2020

[1] This document is based on the format and/or content of the following reports: 1) Ethical Conduct Report, Human Research Ethics Committee, Griffith University, Australia (undated); 2) Progress Report, Health Research Ethics Committee, Faculty of Health Sciences, Stellenbosch University, South Africa (2011); and 3) Final Research Report (Version 1.0), Office for the Protection of Research Subjects, University of Chicago, United States of America (undated).

How many research participants have been **recruited/enrolled** in the period since the last progress report?	18 out of 22
Indicate any **ethical difficulties**[2] that have been encountered to **obtain consent** from potential research participants: - The Covid-19 lockdown measures that were imposed in 2020-2021 led to delays; - Due to Covid-19 pandemic it became difficult to get hold of the respondents as most were working from home and were often unreachable; - At times, other respondents did not show much interest to partake in the study; - Those who showed interest were often unreachable due to their own work commitments, hence the progress delay	

5. Withdrawal of consent:

	Yes	No
Have any of the research participants (including a parent or legal guardian in the case of minors) withdrawn their consent during the conduct of this proposal?		X
If **YES,** provide the details of the number of participants, their reason for withdrawal (if known) and any action taken by the researcher/s:		

6. Unexpected ethical issue management:

	Yes	No
Did any of the research participants experience **serious adverse events**[3] or other **harms** during the report period?		X
If **YES,** provide the details (date, event and outcome) and the action taken by the researcher/s:		
If **YES**, indicate how and when the Research Ethics Committee was notified of the serious adverse events:		

[2] "Ethical difficulties" refer in this case to the issues that made it hard or impossible for the researcher / fieldworkers to obtain verbal or written consent from potential research participants, e.g. unwillingness to sign consent form, being suspicious of research, demands for incentives (money or other material items), insistence on providing collective rather than individual consent

[3] See Section 12 "Serious Adverse Event Reporting" in the *Standard Operating Procedures and Guidelines* of the TUT Research Ethics Committee.

7. Research participant complaints:

	Yes	No
Did any of the research participants lodged **complaints** with the researcher about any ethics-related aspect of the project?		X
If **YES,** provide the details (date, complaint and outcome) and the action taken by the researcher/s:		

8. Other ethical issues:

	Yes	No
Did any new **Intellectual Property (IP) considerations** arise during the current report period?		X
If **YES,** has a formal IP agreement been submitted to the office of the Innovation Manager?		

	Yes	No
Have any **research participants been withdrawn** from the project by the researcher / supervisor/s?		X
Are there any other ethical issues (e.g. breaches of anonymity or confidentiality; loss of data through theft or computer failures) that you would like to bring to the attention of the Research Ethics Committee?		X
If **YES** to any of the above issues, please provide details:		

Chairperson/Deputy Chairperson

Faculty Committee for Research Ethics

Faculty of Humanities

Tshwane University of Technology

Pretoria

0001

RE: REQUEST FOR AN EXTENSION OF MY ETHICS CLEARANCE

I, Ms Madikana Jackinah Mokgokong, a registered doctoral candidate at the Tshwane University of Technology (TUT) pursuing a Doctoral Degree in Public Affairs under the Faculty of Humanities; hereby request the committee to grant me an extension for my ethical clearance. My research is entitled **"A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces"** under the supervision of Profs MH Maserumule and RM Mukonza.

I have obtained the ethical clearance on the 01st December 2020 (please see the attached ethics letter); however, there were challenges with data collection processes and some of those are reflected below:

- The Covid-19 lockdown measures that were imposed in 2020-2-21 led to delays;
- Due to Covid-19 it became difficult to get hold of the sampled respondents as most were working from home and were often unreachable;
- Other respondents did not show much interest to partake in the study;
- Those who showed interest were often unreachable due to their own work commitments;

Please note that despite these challenges I have managed to make a great progress on data collection and I have thus far collected data on 18 respondents and I am left with only 4 which is inclusive of 3 members of the Universities of North West, Johannesburg, Witwatersrand and one member of the Gauteng Research Forum. In addition, I have already submitted my chapter 2 and 3 to the supervisor and currently finalizing my chapter 4.

I will truly appreciate if the committee can grant me an extension so that I can wrap up my data collection phase.

Looking forward to your positive response.

Yours Sincerely

Ms Madikana Jackinah Mokgokong

Student Number: 221244818

ANNEXURE K: APPLICATION FOR PERMISSION AT UJ

04 April 2022

Madikana MokgokongTshwane

University of Technology (TUT)

Dear Madikana Mokgokong

PERMISSION TO CONDUCT RESEARCH AT THE UNIVERSITY OF JOHANNESBURG

The request for the project titled *A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces* refers. Permission is granted to conduct this study at the University of Johannesburg (UJ).

Please note that the granting of permission does not make it mandatory for UJ students and/or staff to participate in the study. As the researcher/applicant, you will need to engage with potential participants to obtain their consent to participate in the study.

Acting Executive Director: Research and Innovation

Dr Ndivhuwo Luruli

Email:nmluruli@uj.ac.za

ANNEXURE L: NWU PERMISSION LETTER

Private Bag X6001,
PotchefstroomSouth Africa
2520

Tel: +2718 299-1111/2222

Web: http://www.nwu.ac.za

Research Data Gatekeeper Committee

NWU RDGC PERMISSION GRANTED / DENIED LETTER

Based on the documentation provided by the researcher specified below, on 29/07/2022 the North-West University (NWU) Research Data Gatekeeper Committee (NWU-RDGC) hereby **grants permission** for the specific project (as indicated below) to be conducted at the NWU:

Project title: A research and development model for planning and

development in South Africa's provincial administration: A case of

Project leader: Prof. M.H. Maserumule and Dr R.M. Mukonza

Ethics reference no: FCRE/PM/STD/2020/16

Specific Conditions:

- The researcher may contact the Research Support Director or any other designated research manager that the NWU making use of publicly available contact details to do so.
- The researcher may not be provided with any documentation or agreement that are not publicly available.
- The researcher must provide the RDGC with an updated research ethics

Approval date: **Expiry date:**

General Conditions of Approval:

- The NWU-RDGC will not take the responsibility to recruit research participants or to gather data on behalf of the researcher. This committee can therefore not guarantee the participation of our relevantstakeholders.
- Any changes to the research protocol within the permission period (for a maximum of 1 year) must be communicated to the NWU-RDGC. Failure to do so will lead to withdrawal of the permission.

- The NWU-RDGC should be provided with a report or document in which the results of said project are disseminated.

- Due to the COVID-19 pandemics the Committee would like to advice the researcher to practice the necessary caution and adhere to the National Covid-19 Guidelines when conducting research with participants.

Please note that under no circumstances will any personal information of possible research subjects be provided to the researcher by the NWU RDGC. The NWU complies with the Promotion of Access to Information Act 2 of 2000 (PAIA) as well as the Protection of Personal Information Act 4 of 2013 (POPI). Foran application to access such information please contact Ms Annamarie De Kock (018 285 2771) for the relevant enquiry form or more information on how the NWU complies with PAIA and POPI.

The NWU RDGC would like to remain at your service as scientist and researcher, and wishes you well with your project. Please do not hesitate to contact the NWU RDGC for any further enquiries or requests for assistance.

Yours sincerely

Prof Jeffrey Mphahlele
Chairperson NWU Research Data Gatekeeper Committee

Original details: (22351930)
C:\Users\22351930\Desktop\test 2.docm13
November 2018

Current details: (22351930) M:\DSS1\8533\Monitoring and Reporting Cluster\Ethics\Applications RDGC\Updated RDGC Permission Letter.docm15 November 2018

File reference: 1.1.4.3

Research Data Gatekeeper Committee

ANNEXURE M: RESEARCH DATA GATEKEEPER COMMITTEE - REQUEST FOR INFORMATION

1 Applicant Contact Information

Date of application	Name of Institution
2022-05-04	Tshwane University of Technology

Title	Role in Application	If others – please complete
Other	Primary Investigator / Researcher	

First Name	Last Name
Madikana Jackinah	Mokgokong

Email Address	Phone
madikanam@gmail.com	0730186048

Title of study

A Research and Development Model for Planning and Development in South Africa's Provincial Admnistration: A Case of Selected Provinces

2 Supervisor/Promotor/Researcher Information (If applicable)

Title	First Name	Last Name
Other	Mashupye	Maserumule

E-mail Address

MaserumuleMH@tut.ac.za

Phone

2.1 Co-Supervisor/Co-Researcher Information (If applicable)

Title

Other

First Name

Ricky

Last Name

Mukonza

E-mail Address

MukonzaRM@tut.ac.za

Phone

0730867051

3 Research Ethic Approval

Name of the ethics committee that provided ethics approval.

Faculty Committee for Research Ethics- Humanities (Tshwane University of Technology)

Research Ethics approval number: FCRE/PM/STD/2020/16

Date of research ethics approval: 01-Dec-2022

Please provide a proof of ethics approval (note that your application will not be considered without the necessary approval).

[x] Accept this condition by marking this checkbox.

4 Research Proposal

Name of the scientific committee that approved the study.

FCPS

Date of scientific approval: 03-Nov-2020

5 Further Questions

Instructions

Please refer to the RDGC Guide on page 5 for examples and explanation of each question in the application form to better understand what information is needed by the RDGC and to ensure that the questions are answered comprehensively.

1. Provide a full description of your research sample. Please state your inclusion and exclusion criteria forthe designated research sample.

- The proposed study will adopt a purposive sampling method for selecting both the key informants in the provincial government/administration as well as those in the universities.
- The targeted population comprise of a total of 09 officials in Office of the Premeir in Limpopo, Gautengand North West, a total of 06 research forum members in the three aforementioned provinces and 07 universities residing in these three provinces; directors of research and development or the people delegated by the directors/ the university are persons of interest. As this is a qualiattive study the total sample size of the study is 22 or until a point of data saturation. With the NWU the researcher seeks to only interview one person thatg is the director of research and development or the delegated person.

Inclusion criteria: key informants who possess knowledge about research and development matters in theprovince and their university. Any delegated person by the university or directors of research and development in the university who possess knowledge on issues of research and development within the provincial sphere.

Exclusion criteria: government officials and university officials who do not work with matters of researchand development, strategic planning, policy making and monitoring &evaluation.

2. Motivate why the data must be gathered from a specific / designated NWU stakeholder group.

The decision to gather data from the NWU is largely motivated by the fact that it is the only university in the province and it is likely to perform community engagement functions; also that it may have links with government and how government does its business as well as the role it plays in the development of the province. Moreover, it wasa deliberate choice due to qualities and positions the key informants (research and development director or the delegated person) possess.

3. Please explain how the sample of participants in your project will be identified and recruited.

The study will sample both Offices of the Premier in three provinces. In each Office ofthe Premier the study will target Directors and/or Deputy Directors responsible for research, policy coordination, and/or strategic planning units. The study will also targettwo representatives who form part of existing research foras in each province.

Furthermore, to gain more insights on the existing research partnerships between government and academic institutions and how they tackle R&D issues in relation to planning and development issues, thus the proposed study will also focus on existing universities within the targeted provinces, the persons of interests in these institutions will be preferably the heads or directors of research directorates or the people delegatedby the research directors.

The researcher will contact the participant through an email or telephonically and requesttheir participation, upon their agreement the researcher can then share all the required documentation regarding the study with the participant. Upon permission being granted, the researcher will request the gate keepers to provide the names and contacts of the prospective participants, in this case the director of research and development.

4. Explain how the participant identification and recruitment process of your research adheres to the Protection of Personal Information Act 4 of 2013 (POPI Act).

Please see http://www.nwu.ac.za/access-to-information-act for more information regarding the POPI Act.

The researcher will get the consent of the prospective respondent prior to the commencement of the interview, the participants will be provided with an information leaflet which gives a brief background of the study so that they can have an understanding of what the study entails. Additionally, respondents will be notified that their participation will be voluntary and they are at liberty to withdraw their participationshould they feel the need to do so

The researcher will ensure that the information of the participants in the study is stored ina secured and access controlled place in locked a cabinet and on a computer that has a secured password which is only accessible by the researcher in order to avoid third parties gaining access to the information and harvesting and using it for their own motives.

The researcher will ensure that the respondents are not identifiable and are not locatedin any way. The researcher will use codes to identify each and every respondent, this code of identity will only be known by the researcher.

5. Provide a full description of the data that will be gathered.

The kind of data that will be gathered in NWU is textual and factual data pertaining the relationship between NWU and the provincial government and the role that NWU is playing in planning and development actgivities in the province. The textual data that maybe required will be in a form of annual reports and any signed agreements between government and NWU if available and the factual adat will be in a form of interviews withthe NWU delegated person.

6. *Provide a full description of the data gathering process that will be followed (What will be expected of the research participants and exactly how will the data be collected).*

Data will be collected by the researcher Ms Mokgokong. The proposed study will utilize two categories which is textual and field data. Firstly, textual data such as university annual reports and agreements of partnerships with government will be gathered through the interviewed personnel as well as desktop data search. Secondly, factual data will be gathered through aninterview with the director of research and developmentin NWU or any delegated personnel, the interviews will be held virtually through MS Teams or Zoom and recording of the proceedings will be be done with the permission ofthe participant; alternatively, an interview guide can be send to the participant to complete and return to the researcher. In any chosen method a consent form will be provided for the participant to sign prior to their participation.

RDGC Application Guide

Question 1

- Please include your inclusion and exclusion criteria of research participants, alongwith the description of your research sample and size of the sample.

Question 2

- Motivate why the data must be gathered from the specific NWU stakeholder group.

Question 3

- Please include specific details such as:
    - What specific information will be used to identify your prospective participants?
    - How will the researcher make initial contact with the prospective participantsin order to invite them to participate in this research?
    - Where and how will the researcher get the information to be able to make

contact with prospective participants?

- How exactly will the participants be invited to take part in the research? (i.e.What will the researcher do to invite the participants to participate in the research?)

- Who will recruit the prospective participants? Researcher to disclose if thereis a relationship between himself/herself and the prospective participants. If yes, how will the researcher ensure independence in the data gathering anddata processing?
- When and where will the recruitment of participants take place?
- How will the researcher ensure that participants do not feel pressured into participating in the research (i.e. truly voluntary participation)

Question 4

- Informed consent will be obtained which allows the participants to choose when andhow they would like to share their information. Explain the informed consent process including information regarding anonymity, confidentiality and willing participation.
- Note that no personal information is used to identify or to recruit participants (e.g. contact details or academic records).
- The researcher may place adverts on various platforms which allows participants with the opportunity to choose if they want to participate in the research. This would allow the participant to opt to participate in a project, thus giving consent that his/herpersonal information would be accessed; also when and how this information wouldbe share.
- Measures the researcher will put in place to ensure the confidentiality of the institutional information and/or the anonymity of the NWU student/staff.

Question 5

- Please explain what data or information will be gathered/requested from participants or the NWU.

Question 6

- Please include specific details such as:
  - Who will be collecting the data?
  - What will be done?
  - Where and when will data be collected?
  - How will the data be collected?
  - How will the researcher ensure that a transparent and objective process is followed in obtaining data from individuals?

Documents required to be submitted with the application:

- Research proposal
- Ethics approval
- Consent form
- Questionnaire or interview questions

Upon completion, please email this application form (completed), along with your proof of ethics clearance and an approved research proposal to the RDGC at NWU-RDGC@nwu.ac.za.

Original details: (22351930) M:\DSS1\8533\Monitoring and Reporting Cluster\Ethics\Applications RDGC\Application form\Research Data Gatekeeper Committee -Request for information.docm

6 September 2019

File reference: 1.1.4.2

ANNEXURE N: CERTIFICATE OF LANGUAGE EDITING

Peter Southey

Language Practitioner

259 Muckleneuk Street

New Muckleneuk Street Pretoria

0180

Email: petersouthey0@gmail.com

Mobile: 082 8504015

To whom it may concern

This is to confirm that I, Peter Southey, edited the language of the dissertation

A Research and Development Model for Planning and Development in South Africa's Provincial Administration: A Case of Selected Provinces.

by

Madikana Jackinah Mokgokong

The onus is on the author to attend to the suggested changes. Furthermore, I do not take responsibility for any changes in the document after the fact.

P G Southey 6 July 2023

ANNEXURE O: EXTENSION OF ETHICAL CLEARANCE

Tshwane University of Technology

Faculty Committee for Research Ethics – Humanities [FCRE-HUM]

The TUT Research Ethics Committee is a registered Institutional Review Board (IRB 00005968) with the US Office for Human Research Protections (IORG# 0004997) (Expires 14 Jan 2023). Also, it has Federal Wide Assurance for the Protection of Human Subjects for International Institutions (FWA 00011501). In South Africa it is registered with the National Health Research Ethics Council (REC-160509-21). The FCRE-HUM is a subcommittee of the Senate Committee for Research Ethics

23 JUNE 2022

Ref #: FCRE/PM/STD/2020/16

Name: Mokgokong, M.J.Student #: 221244818

Mokgokong, M.J.
C/o Prof. M.H. Maserumule
Department of Public
ManagementFaculty of
Humanities

REQUEST FOR EXTENSION OF ETHICAL CLEARANCE

N.B. The application was previously approved on the FCRE Meeting of the 11th of November 2020

Decision: The application be approved

Dear Ms./Mr. Mokgokong, M.J.

Your application for the ethical clearance of the following study was received and considered

by the FCRE-HUM during 08 June 2022 meeting

Title: A research and development model for planning and development in South Africa's provincial administration: A case of selected provinces

Investigator: Mokgokong, M.J. Qualification: Doctor of Public Affairs Supervisor: Prof. M.H. Maserumule Co-supervisor: Dr. R.M. Mukonza

Co-supervisor: None

Thank you for submitting your proposal for ethics clearance.

In reviewing the proposal, the following comments/notes, emanating from the meeting are tabled for your consideration/attention/notification:

Decision: The ethical clearance be extended to 30 July 2022

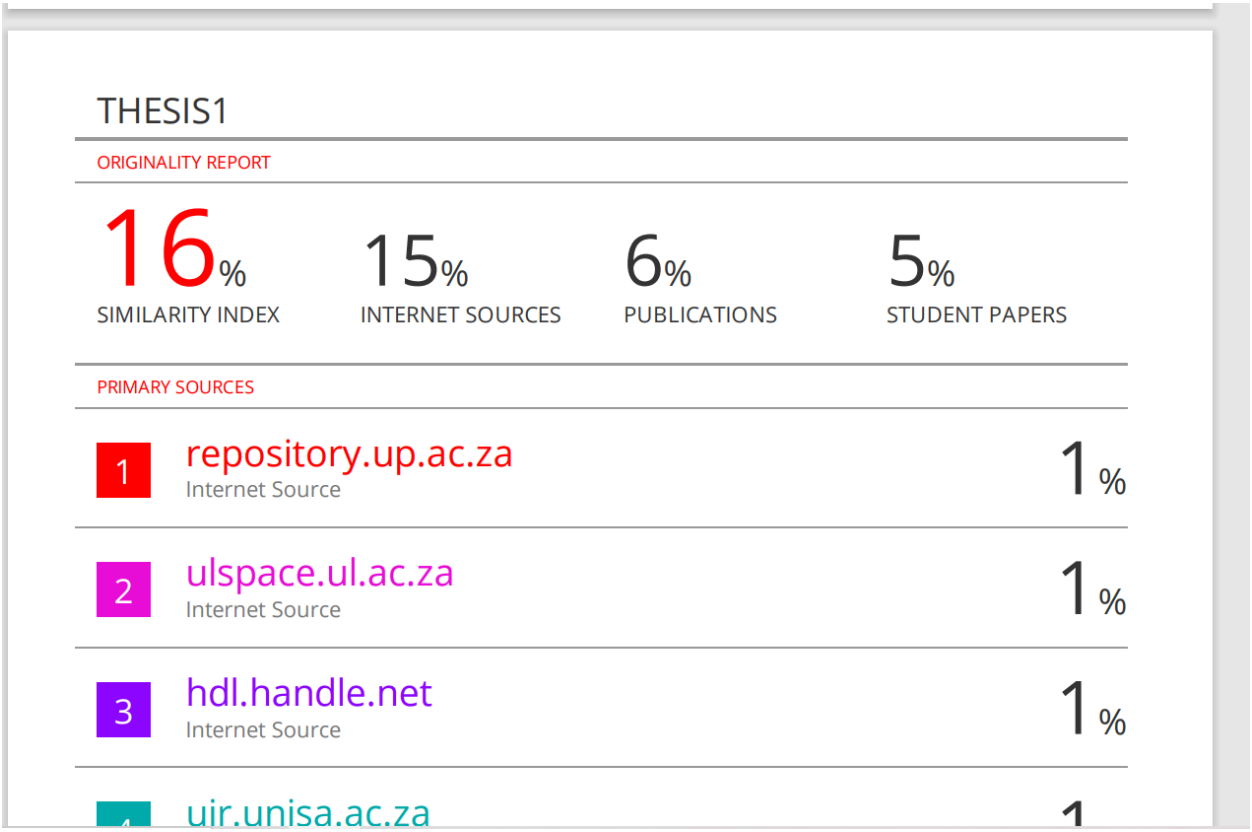
The Committee wishes you well with your research endeavours.

Signature 22 JUNE 2022

Chair / Deputy-Chair

Faculty Research Ethics Committee[Ref#: FCRE/PM/STD/2020/16]

ANNEXURE P: SIMILARITY INDEX RESULTS



THESIS1

ORIGINALITY REPORT

16%	15%	6%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	repository.up.ac.za Internet Source	1%
2	ulspace.ul.ac.za Internet Source	1%
3	hdl.handle.net Internet Source	1%
4	uir.unisa.ac.za	1