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BARRIERS TO BUSINESS INTELLIGENCE ADOPTION BY A GOVERNMENT INSTITUTION IN THE WESTERN CAPE, SOUTH AFRICA

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DECLARATION

I, Rushaana Fakier, declare that the content of "Barriers to Business Intelligence Adoption by a Government Institution in the Western Cape, South Africa" represents my own work and that this thesis has not been previously submitted for academic examination towards a qualification.

16 November 2021

Signed	Date

ABSTRACT

The aim of this research is to understand why a government institution in South Africa is slow in the adoption of Business Intelligence as a decision-making tool, and what obstacles exists during the adoption of Business Intelligence within a government institution in the Western Cape, South Africa.

A conceptual framework was designed, leveraging Richard Heek's Design-Reality Gap Model. A mixed method of data collection was applied. Qualitative data was collected by conducting structured interviews coupled with the use of dimensions defined in the conceptual framework to create themes. Examples of these themes are Technology, Processes, Objectives and Values, Staffing and Skills, and Management Structures and systems. Quantitative data was collected through the use of a survey, to discover what gaps exist between the expected design from the Business Intelligence software and what was delivered (reality) with the stated dimensions, information and Other resources.

The Dimension Gap analysis revealed that there was an overall gap rating of 41.85 calculated. This result indicated a partial failure of the implementation of the Business Intelligence technology. The Thematic analysis highlighted the dominant status per theme.

This research found that despite a strong willingness to adopt Business Intelligence and the known benefits, barriers for adoption still existed. The barriers identified in the research conducted, were a lack of communication; a lack of leadership; limited awareness created around the availability of the chosen technology; the absence of training; and the limited awareness of a training platform as well as no education that there referred to the availability of the new technology that was provisioned.

Key Words

Business Intelligence, Western Cape Government, Adoption, Barriers, Design-Reality Gap Analysis, Thematic Analysis

ACKNOWLEDGEMENTS

DEDICATION

vi

I would like to dedicate this research project to all the people who have assisted me in completing this thesis. They include my family, lecturers, friends and colleagues.

ABBREVIATIONS AND ACRONYMS

BI	Business Intelligence
BSC	Balance Score Card
CEO	Chief Executive Officer
DOI	Diffusion of Innovations Theory
EA	Enterprise Architecture
ETL	Extract, Transform, Load
SME	Small to Medium Enterprise
TAM	The Technology Acceptance Model
TPB	The Theory of Planned Behaviour
UTAUT	Acceptance and Use of Technology

CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE: INTRODUCTION

Making government institutions more inclusive, transparent, and effective has become a global sentiment. Information, technology and communications technologies (ICTs) can largely assist in reaching these goals. According to the United Nations Department of Economic and Social Affairs (2016), nations all over the world are progressively grasping development and using ICT's to convey benefits and draw people into the decision-making process. Take the case of South Africa, the Department of Performance Monitoring and Evaluation in the Presidency (DPME) was established to make sure that the administration executes what they intend to execute and has an important effect on the lives of the general population in the nation (Department of Planning, 2020).

The Policy Framework for the Government-Wide Monitoring and Evaluation System sets out three fundamentals for the monitoring and evaluating system for data. The fundamentals being programme performance information; social, economic and demographic statistics; as well as evaluation (Department of Planning, 2019).

Bilal (2017) refers to modern society has knowledge society, stating that society needs the support of information, with the possibility and enablement to share knowledge, creating room for employment that crosses the barriers of physical location and physical presence. The researcher further states to ensure good governance, it is essential for public authorities and non-governmental players to productively work together. Furthermore, e-governance and innovation can be enablers to transform public administration into betterment instrument that can be sustained.

An example of this is can be traced to units within a government department, that has its own significant contribution to the information produced in these units. However, according to research conducted at South African municipalities has found that silos still exist due to the way government is structured. The structures have been created because of specialist functions within the various areas within government (Mawela, Ochara & Twinomurinzi, 2017). The result of a siloed organisation is that the information stored in different places are not linked, thereby sharing information is an ongoing challenge. These challenges can affect critical decision-making.

Government has invested in analytical tools and technologies to assist in the monitoring and evaluation of progress within respective departments (Umlaw & Chitepo, 2015). An example of these analytical tools and technologies is Business Intelligence. This study focused on Business Intelligence (BI) in government institutions within South Africa and sought to

investigate barriers that exist in the adoption of BI within government institutions. Empirical data was drawn from a government institution within South Africa.

1.1 Background to the Research Problem

The volumes of data produced by the South African government are increasing. The South African government is having trouble with employing big data analytics (BDA) for the analysis of their large volumes of data. Reasons could be due to both technical and nontechnical factors. Being unsuccessful in implementing BDA holds the government back from delivering quality services. Factors of knowledge, process, differentiation and skillset have been found to impact the implementation of BDA (Matiwane & Iyamu, 2020).

In recent research Malomo and Sena (2017) determined the factors preventing local governments from using big data. The factors identified were: data complexities persistent in government data resulting in data residing in disparate locations; data access issues as a result of scarcely specified authorisation between different departments; ambiguous ethical concerns; poor infrastructure; under-investment in information technology (IT); insufficient expertise and organisational values.

Inaccurate and inconsistent data result in poor financial decisions, low productivity, communication gaps and slow service delivery.

BI systems are certainly imperative for the optimal functioning of an organisations. BI enables the organisation to provide information that is accessible, honest and thorough, and such information has the potential to create a platform that increases the operational efficiency of measuring, understanding and running such a department's business operation. Daily processes can be maximised by implementing BI business processes, coordinating people, processes and technologies (Ain et al., 2019).

The studies mentioned above give background to the research problem and shows that government departments are struggling to utilize the capabilities of BDA and business intelligence. This study investigated the barriers to adopting BI within South African government institutions, using a government department as a case study.

1.2 Statement of the Research Problem

Emerging from the above background is the following statement of research problem: Technologies has been implemented at South African government institutions with the hope that it will help government in the decision-making process, yet the government institution of this study is still failing to utilise the capabilities of the systems. Obtaining information that gives an integrated and overarching view of operations to assist with decision making within

government institutions within South Africa remains a challenge. This is despite technologies that exist to aid in decision-making that have been implemented. Failure to utilise systems capablities means that there is basically no return on investment.

A study by Mansell (2016) found that within a Public Sector organisation the directorate recognises the value and of reporting in strategic decision-making but usage of analyitical tools like Business Intelligence in a is low.

1.3   Research Aim and Objectives

The aim of this research was to understand why a government institution in South Africa is slow in the adoption of Business Intelligence as a decision-making tool and what obstacles exist when embracing BI within a government institution within South Africa, since clear organisation objectives exist, and tools and techniques are outlined and provided.

The study takes place in South Africa, using an empirical case study of a department within the government of South Africa.

The objectives of this research were to identify the following:

- The reasons that barriers exist in the adoption of BI within a government department in South Africa, like the case study.
- The barriers in adopting Business Intelligence, as a decision-making tool that exist in a government department in South Africa.
- The perception of usefulness within a government department in South Africa that has adopted Business Intelligence.

1.4   Research Question, Sub-Questions and Objectives

Research Question

Why is the government institution in this study slow in adopting Business Intelligence as a decision-making tool?

Research Sub-Questions

1. What are the barriers to BI adoption within the government institution under this study?

2. What does the government institution in this study regard the benefit of Business Intelligence?

3. *What methods for decision-making does the government institution in this study prefer?*

1.5 Delineation of Research

The case is a department of the government of South Africa in the Western Cape.

Aspects of the context relevant to your study: Business Intelligence and Technology adoption

Organisation type: Government

Sector: Public

1.6   Thesis Structure

The thesis was structured into six chapters, depicted in Figure 1 as follows:

Chapter One: Introduction

Chapter Two: Literature Review

Chapter Three: Theoretical Framework

Chapter Four: Research Design and Methodology

Chapter Five: Research Findings and Analysis

Chapter Six: Recommendations and Conclusion
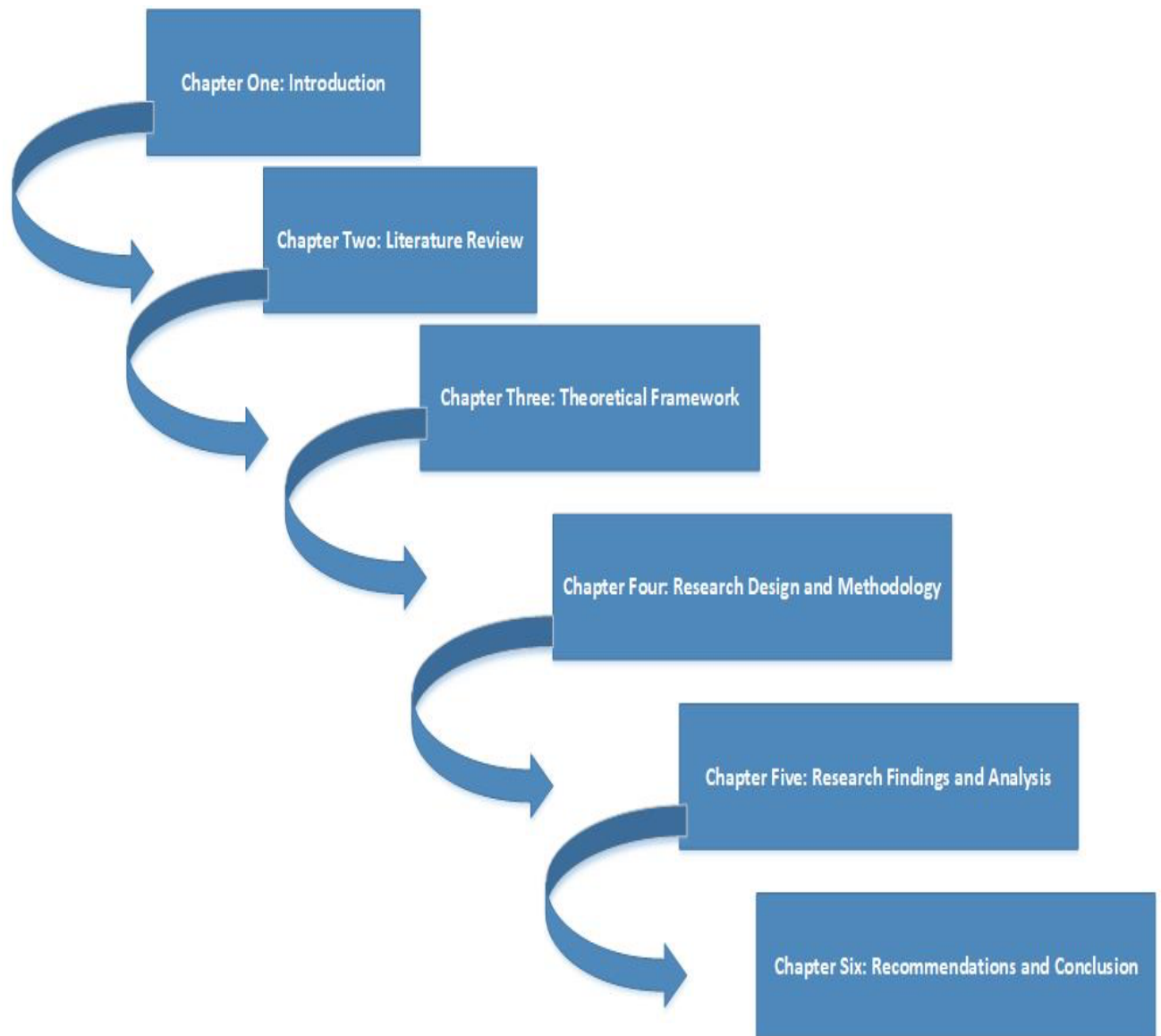
Figure 1: Structure of Thesis

Chapter One: The background introduced the research problem. Thereafter the research problem was made. This was followed by the research aim, the research questions, delineation of the research study and the intended contribution of the research.

Chapter Two: A comprehensive literature review was documented that related to topic of research.

Chapter Three: Delving deeper into adoption models in this chapter, the researcher explores and compares different adoption models. The theoretical framework of this study is articulated. This is followed by the derived conceptual framework.

Chapter Four: This chapter represents the research design and the research methodology followed for conducting the study. Discussions on the empirical setting and the ethical considerations are made. The unit of analysis was described as well as the manner in which the data was collected as well as an outline of data analysis techniques.

Chapter Five: Here research findings are presented and analysed. The themes that emerged from the conceptual framework and the status of these themes are shown here. Results of the gap analysis are represented by descriptive analysis.

Chapter Six: This chapter provides the recommendations made by the researcher based on the research purpose and discoveries. The chapter concludes the research study by addressing the research questions.

As outlined in the structure of the thesis (Figure 1), a literature review on areas relevant to the research study is presented in the next chapter.

1.7 Contribution of the Research

The government institution will be informed of the barriers of adopting the Business Intelligence technology that are exposed by the findings of this study. The findings could aid in overcoming the barriers that are identified and assist in the more effective use of the analytical tools which the Business Intelligence technology can provide the government institution. A more effective use of the analytical tool will result in better monitoring and evaluating of government departments. The results of the study could be used to improve new implementations of similar tools in other government departments and limit the barriers.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The wordle visualisation below gives a glance into the most used words that were found when doing the literature review:

Figure 2: Wordle Visualisation of Business Intelligence and Decision Making

The literature review for this study will make arguments about business intelligence and its presence within the South African government, a government department and the use of information and communication technologies in government. Further reviews of data analytics and decision making; BI value and impact; information system adoption in government; barriers for system adoption; adoption Factors and Barriers.

2.2 Business Intelligence

Chen and Lin (2021) states that business intelligence (BI) can be viewed as different computerised techniques and procedures for transforming data into information. The information is then transformed into learning. What has been learnt can then be used to improve the way decisions are made in a business or organisation.

Similarly, BI according to Gartner (2017) enables enhanced and confident decision-making and work execution by incorporating applications, infrastructure and tools, and best practices.

BI is the accurate, timely, critical data, information and knowledge that supports strategic and operational decision making and risk assessment in uncertain and dynamic business environments. The source of the data, information and knowledge are both internal organisationally collected as well as externally supplied by partners, customers and third parties as a result of their own choice. BI is bringing together all the information, from the different business units in an organisation. The data is then manipulated and grouped, across the areas and across time. Decisions can then be made based on trends that are applicable to all organisation units.

When information and knowledge from the different organisation units are brought together and compared, the organisation will have the ability to make better strategic decisions based on all business areas. Better communication will be achieved through the data being integrated in a central place, poor processes can be identified and changed to increase productivity, increased productivity will increase service delivery and spending will be done more efficiently.

2.3 Business Intelligence in Government

The figure below shows the different levels of maturity an organisation can be in with regards to Business Intelligence, and

an organisation's level of maturity is based on the following:

1) How they data is treated by the organisation
2) How data is used in the organisation
3) Who has access to information
4) How the data is processed
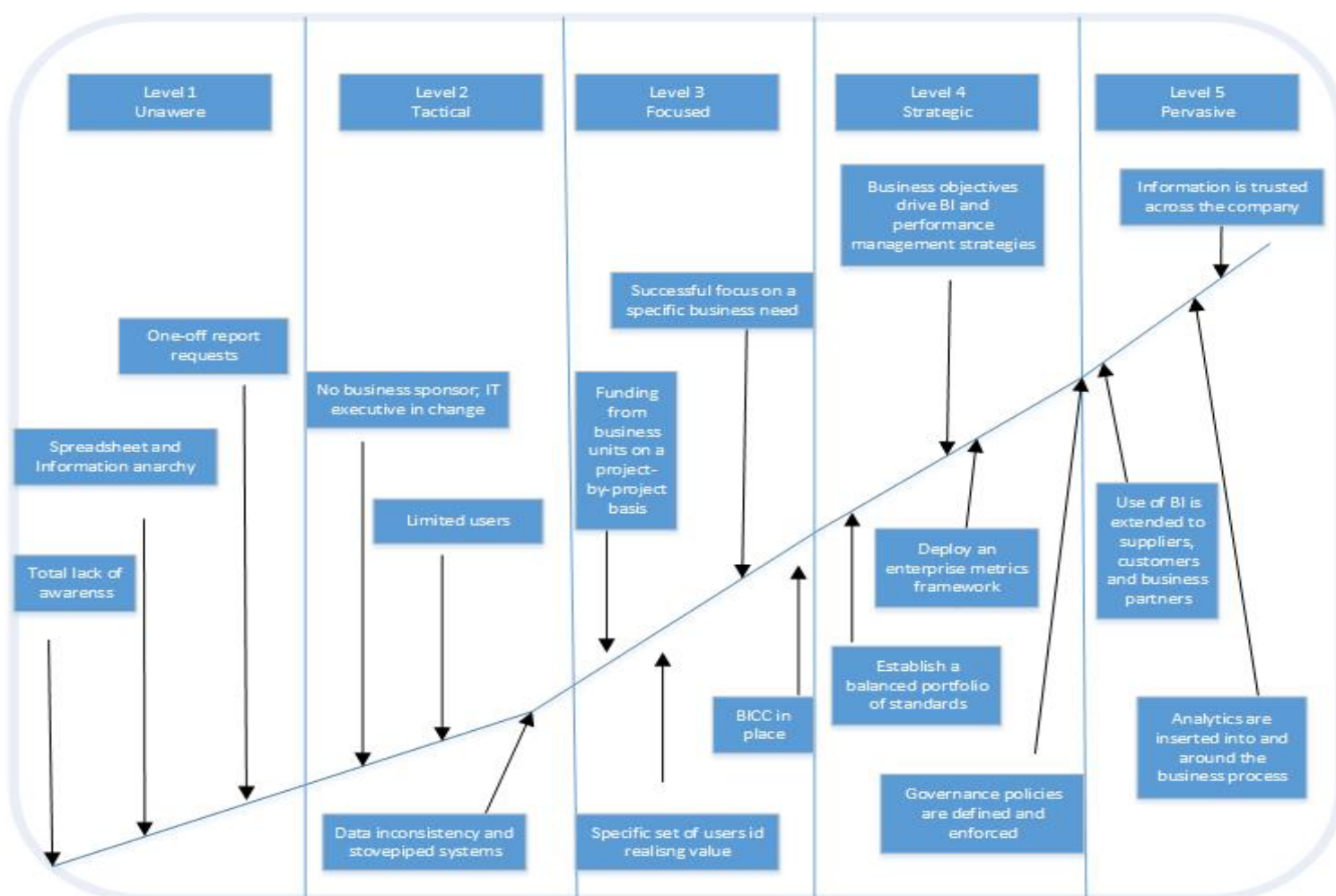
Figure 3: Gartner Maturity Model (Gartner, 2008)

Although the South African government recognises the importance of data and transforming that data into knowledge, contrary to this recognition, Mansell and Ruhode's (2019), research

explains that impediments and obstacles still exist during the adoption of business intelligence tools by leaders in a large metropolitan government entity. The research found that the impediments and obstacles cover a broad spectrum from personal, system quality, organisational, macro-environmental, behavioural beliefs and attitudes, effort perceptions and social influence to facilitate conditions.

2.4   Business Intelligence in a government department

This section takes a look at the state of Business Intelligence in a government department. The academic literature brought forth the following findings.

The city of Tshwane (2018), in South Africa has taken an approach of creating a Business Intelligence Competency Centre (BICC). BICC is formally joined group of people. The disciplines, areas of expertise and know-how of this group of people are interconnected and serves the purpose of enhancing the knowledge throughout a distinct organisation. The pursuit of a BICC is:

1. Sustain the organisation's BI strategy
2. Integrate the BI strategy with the organisation strategy
3. Provide the guarantee that the BI technology investment will enrich the organisation and allow the organisation to accomplish its strategic objectives

A study done by Hartley (2015) uncovered that Business Intelligence can facilitate change and enhance the way work is done in the public sector. The use of business intelligence was low because the users where not skilled.

Departments within the public sector acknowledges the benefits of using Business Intelligence but based on the literature lack of awareness still exists.

2.5   Business Intelligence in e-government

The Organisation for Economic Co-operation and Development (2019) says the goal of e-government is to increase effectiveness and openness of government sectors by embracing digital technologies and therefore ensuring that current procedures and public services are more economical of time and money.

Similarly, Sigwejo (2015), agrees that use of e-government is necessary for a government to increase service delivery. He further expands on the definition of e-government by stating that the e-government userbase has broadened and expanded to enable it to be utilised even by the citizens of a country.

A survey performed by the United Nations Department of Economic and Social Affairs

(2016) highlighted the positive development governments have made in the world.

The survey found that e-government has turned into an advancement marker and a goal all by itself. It can add to a country's advancement. The survey propelled the conveyance of essential administrations, for example, education, health, employment, finance and social welfare. The e-government Development Index (EGDI) has been used to monitor the progress

that e-government has made. The EGDI was utilised to gauge the status and limit of government organisations to utilise ICT for public administration. The UN survey results for 2016 are summarised as follows: Africa continues to lag globally with a low average at 0.2882, a figure that falls far below the leading European EGDI of 0.7241. Except for five countries, all other African countries are in the lower two tiers of e-government development in other words, the low-EGDI and middle-EGDI groups. The top five performers on e-government with high EGDI values are Mauritius, ranked globally at 58th, Tunisia at 72nd, South Africa at 76th, Morocco at 85th, and Seychelles at 86th. The survey found that it was evident that developing countries are making progress regarding e-government, but much work is still necessary.

Refiloe and Noluntu (2019) explains that e-government can further be divided into various digital interactions:

- G2G: between governments and other government agencies
- G2C: between governments and citizens
- G2B: between government and private sector
- G2E: between government and employees

Therefore, if e-government includes all information and communication technologies, BI forms part of these technologies because it can be available to users at different levels within governments as it integrates the organisation's processes. A well-integrated BI solution trusts all organisational data sources and provides information for all users linked to the organisation, from business decision makers through to the suppliers of the business. BI is therefore part of all the above-mentioned digital interactions making up e-government. In South African government the utilisation of BI remains a challenge. The benefits of using BI in digital interactions like C2G, G2G, G2C, G2B and G2E are not being realised.

2.6   Data Analytics and Decision-Making

Business Intelligence provides an organisation or business with information. Information is the key to sound decision making and obtained by analysing all data linked to an organisation, given that data makes up all internal and external sources related to the organisation, and has become the term Big Data.

Krakauer and Almeida (2016), states that information about a working environment is critical for an organisation to make leadership decisions. Access to this kind of information will help executives in the assessment of potential options. Baars and Ereth (2016) agrees that a centralised view of the organisation's information must be accessible by the decision makers. The accessibility of information will guarantee consistent and efficient decision-making Business Intelligence and Analytics (BIA) can provide a Single Point of Truth (SPOT).

As previously explained the use of BI comprises of all internal and external data sources which have evolved into the term Big Data. Big Data has the capability to enhance decision-making in businesses therefore data and understanding data is so vital in leadership (Wamba, Ngai, Riggins and Akter, 2017).

Likewise, (Gartner, 2017b), agrees that the processing of big data enhances decision-making, insight and process automation, and further describes big data as high-volume, high-velocity and/or high-variety information assets. Therefore, for big data to be used profitably it must be effectively transformed.

Research conducted by Malomo and Sena (2017), found that there are differences in the manner in which big data is viewed in the private sector compared to the public sector. The private sector views Big Data as volume and variety, whereas the public sector views multifaceted nature of Big Data as considerably more applicable than volume or variety. The effective use of Big Data in the public sector is not always possible as it is not always possible to manipulate the data.

An annual United Nations Department of Economic and Social Affairs (2016) survey found that data analytics has helped to enable information clarity within governments. This in turn enables the tracking of how effective the South African government may be at service delivery. Additionally, this may also extend to disaster risk management to anticipate problems instead of only responding when problems arise.

Manzoor (2016) found that there is a relation between big data and decision making in the public sector. The researcher suggested that there are possibilities to reorganise business processes, increase participation by the citizens of a country, a transformed way and proof-based decision-making capability.

Findings from literature show that big data exists in the public sector and that the analysis thereof plays an important role in decision-making. Additionally, there has been a demonstration of differences in decision making between the public sector and the private sector because the objectives are different, and sources of information have different ethical complexities.

2.7   BI value and impact

In a study performed by Olszak (2016), it was resolved that BI might activate the settling on more viable business choices, enhancing business procedures and business execution, and additionally gaining new business.

Fink, Yogev and Even (2017), confirms that BI creates value for assets and capabilities, at both operational and strategic levels. The researchers found that the greater the amount funds used to improve BI, the more effective the BI capabilities and the higher the incentive for the business.

Alqili Laury et al. (2020) explains how organisations can use the Balance Score Card (BSC) developed by Kaplan and Norton to measure performance. The 4 BSC performance measures are:

- Learning and Growth
- Internal Business Process
- Customers
- Finance

Several empirical studies have been performed that provide evidence that supports the BSC and can be used to measure the impact of BI systems on organisations.

Further research was done by Owusu (2017) with the goal of discovering the outcome of BI systems after adoption by Ghanaian banks. The study was done using BSC. The system adoption was found to have a positive influence on how the organisation worked. When investigating the 4 performance measures of BSC, the findings brought forth the following:

- There was a direct positive relation between Learning and Growth and the adoption of BI
- The other 3 measures Internal Business Process, Customers and Finance had an indirect positive relation to the adoption of BI

Similarly, Acheampong and Moyaid (2016) also used the BSC to show the influence BI has if it is received properly by an organisation.

According to previous studies the impact of BI systems on an organisation are therefore effective decisions, improving business processes and business performance. The value gained from BI systems can be measured using a BSC developed by Norton and Kaplan.

2.8   System Adoption in Government

Lallmahomed et al. (2017) conducted a study about factors influencing adoption of e-government. The researchers deduced the following:

- The way the user expects the e-government service to perform and favourable conditions for use thereof have a positive relation to the intended use of the service

- The lack of openness to change and the individual's perception of his/her abilities to use computers to perform a task has a negative relation to the utilisation of e-government services
- When the user does not have trust in the service, the relationship between the user and the e-government service becomes meaningless

Further research conducted by Mansell (2016) within a Western Cape government department regarding the part analytical tools play in decision making found that the analytical tools were being underutilised in the department. Mansell suggests that the following actions should be taken in order to change the way the organisation perceives analytical tools and allow the tools to become ingrained into the organisation:

- The system owner must be from director level within the organisation
- A plan on how analytics innovation can include process, technology and people
- Training must be tailored for the people that will use the analytics tools
- Assurance of data quality needs to be instituted, data loads need to be overseen

Mansell and Ruhode (2019) stresses the fact that an organisation has concentrated on technology without realising that people are one of the main drivers for a winning implementation of technology, given that value is accomplished through utilisation which in turn increases the return of investment.

According to a report formulated by The South African Department of Science and Technology (2017) in conjunction with the National Advisory Council of Innovation, technology and innovation provides a brief history and breakdown of South Africa's ranking across different indicators according to State Institution (SITA). The indices covered are:

- Global Innovation Index (GII)
- Global Competitiveness Index (CCI)
- Global Entrepreneurship Monitor (GEM)
- Human Development Index (HDI)

The report further furnishes a summary and breakdown of where South Africa has been positioned across the different STI indices. The information assists in comparing how South Africa is managing on an international level. Additionally, the GII was demonstrated through measures on worldwide innovation and performance of 127 countries and economies. GII consisted of 81 indicators that examined the following:

- Broad vision of innovation
- Political environment

- Education
- Infrastructure
- Business sophistication

The GII score is a calculation of the average and of the innovation input. Additionally, the Innovation output sub-index scores as well.

Innovation Input sub index consisted of:

- Institutions
- Human capital and research
- Infrastructure
- Market sophistication
- Business sophistication

The innovation output sub-index provided details related to:

- Knowledge and technology outputs
- Creative outputs

Table 2.1 below represents the South African ranking from 2012 – 2017. In the case of South Africa, concernment over innovation inputs:

- Human capital and research
- Institutions

 (Department: Science and Technology - Republic of South Africa, 2017)

Table 2.1:Trends in South African ranking on the GII

(Department: Science and Technology - Republic of South Africa, 2017)

	2012	2013	2014	2015	2016	2017
GII ranking	54	58	53	60	57	57
Number of participating countries	141	142	143	141	128	127
Innovation Efficiency Ratio	116	99	93	94	99	97
Innovation Input	45	51	47	54	47	49
Institutions	39	44	44	43	46	54
Human capital and research	103	102	70	75	55	60
Infrastructure	79	83	84	89	85	75
Market sophistication	13	16	18	23	17	21
Business sophistication	55	71	68	73	56	57
Innovation Output	73	71	63	61	71	69
Knowledge and technology outputs	61	79	62	58	63	65
Creative outputs	86	68	70	76	77	78

2.9   Barriers for system adoption

In order to contextualise the barriers of adoption, the factors of adoption needed to be identified and explored.

2.9.1   Adoption Factors

Hatta, Miskon, Ali et al. (2015), determined that there are 25 enabling factors for adoption. The factors were then grouped into one of four meta-characteristics:

1. Technological: relative advantage, compatibility, complexity, trial ability, observability, and innovativeness, knowledge in IT and cost or financial resources.
2. Environmental: business partner, competitive pressure, vendors' selection, technology support infrastructure, government regulation, market trends, linked firm and alliance trust.
3. Organisational: SME's characteristics, collaboration, organizational resource availability, managerial influence, organizational readiness, customer demand and industry/market' needs.
4. CEO's innovativeness: owner- managers' innovativeness, owner-managers' IT knowledge, and owner managers' decision on IS adoption.

Similarly, Acheampong and Moyaid (2016) conducted a study that proposes the following factors as well as the impact on BI adoption:

1. Technological factors: Complexity, Relative Advantage, and Compatibility
2. Organizational factors: Organization's Size, Top Management Support, Presence of Champion and Organisational Readiness
3. Environmental factors: Regulatory Body and Competitive Pressure

When studying adoption of paediatric emergency telemedicine, Ray, Felmet, Hamilton et al. (2016), found other factors influencing BI adoption. The researchers identified and categorised it into 3 domains:

1. Contextual factors such as regional geography, hospital culture, and individual experience
2. Perceived usefulness of paediatric emergency telemedicine
3. Perceived ease of use of paediatric emergency telemedicine.

Research conducted by Wyche and Steinfield (2016), used the affordance theory, which states that perception is what drives actions. The theory was used to demonstrate that ecological

factors has gone unnoticed in previous studies. This factor has proved to be integral to the utilisation and reception of agricultural market information systems. Ecological Factors can be the quality of farmers' mobile telephones and the environment in which they are used.

Boyton, Ayscough, Kaveri et al (2015) explains that the following measures may be used to test why an implementation is unsatisfactory:

- Return on Investment
- Project Management measures
- User satisfaction and non-concrete measures such as increased brand recognition, new sales leads

Their research further found the factors adding to unsatisfactory BI implementations being:

1. Organisational factors
- Management commitment and leadership
- Alignment of BI project goals with organisational goals
- Organisational culture and change management
2. Process factors
- No objectives and requirements being set
- Not plan the BI project and not managing changes
3. Technological factors
- The development of the technical solution without regarding pain points

2.9.2 Barriers

Muljono et al (2021) conducted a study on barriers to ICT adoption by SME's in Indonesia and found the following:

- In order to bridge the digital divide, there needs to be an increase in desire for success
- The findings showed SMEs continue to find it hard to use ICT from upstream side
- Existing human resources lack of skills in addressing technical and operational components of ICT

Ohia, Ongolo-zogo and Fawole (2021) did further investigations in low and middle income countries to pinpoint barriers to adoption and utilisation of digital health information technology applications. They discovered the following barriers:

- Lack of technology knowledge and not being able to obtain technical devices
- Lack of digital literacy and lack of skills
- Less than adequate technology infrastructure (hardware, software, networking)
- Lack of motivational leadership

- Barriers on how funds are supplied and circulated in the business
- Problems in administering organisational and management problems
- Trust barriers between healthcare workers and patients

Eden et al. (2016) conducted research about the barriers to exchanging health related information. Barriers discovered included incomplete data, counterproductive work processes, and information collected that did not address the issues of users.

Big data can be influential in the development of an organisation. Gómez and Heeks (2016) conducted a systematic investigation to uncover the barriers that are causing limitations on the use of big data in the public sector of a developing country, with Colombia as a case. The barriers were revealed by reviewing seven dimensions within the organisation. The dimensions were: Information; Processes; Objectives and Values; Skills and Knowledge; Management Systems and Structures; Technology and other Resources. The results showed that all dimensions highlighted critical difficulties. It was determined that Colombia has the fundamentals for big data set up; however, have minimal existing mechanisms that creates big data.

Sundarani and Qureshi (2017) identified barriers for adoption of Flexible Manufacturing Systems (FMSs). They discovered that financial barriers are the most severe, specifically purchasing and usage costs. Other dominant barriers were behavioural, technical (integration of components) and operational.

Likewise, with the adoption of solar photovoltaic (PV), the most serious barriers hampering its widespread use were financial barriers. In the absence of government assistance and funding in attaining the PV systems, constraints are placed on households to install. Additional barriers are usability of the technology and lack of dependable vendors and technicians (Qureshi, Ullah & Arentsen, 2017).

The reviewed literature has indicated that regardless of the technology, an organisational perspective or at the lowest level of adoption being the individual user, there are many similarities in the factors of adoption and the barriers that exist when adopting new a technology.

2.10   Chapter Summary

The aim of this thesis was to identify the barriers of adoption of business intelligence tools within a government department within the Western Cape, South Africa. To understand the connecting topics that covers this area of research, the researcher embarked on background study on Business Intelligence and how it fits in with government, data analytics and decision-

making, the value and impact of Business Intelligence in an organisation, system adoption in government, barriers and factors that affect adoption.

The researcher found that business intelligence in government was a relatively new area of research, and that further literature review brought to light that government is finding value in data analytics of their Big Data, and how it supports decision-making and promotes transparency within the organisation.

The researcher identified BI value and impact through using a balance score card. Following this, literature about System Adoption in government was reviewed. This review highlighted problems found in system adoption and recommendations made to government.

Barriers and Factors affecting system adoption were then explored and reviewed. Similarities in factors of adoption were present for all levels of adoption i.e. from an organisational level right down to individual level.

The next chapter, Chapter 3, shows the research done on various adoption models used to test the adoption technologies. Subsequent to the adoption models research, a discussion about the theory that frames this research study is done. Chapter 3 is concluded by discussing how the chosen framework supported this research study

CHAPTER THREE: THEORETICAL FRAMEWORK

3.1   Introduction

In the context of this study adoption refers to the acceptance, integration and use of Business Intelligence by a government institution.

The adoption of the Business Intelligence as a technology driven process in organisations has resulted in large amounts of research to be conducted to explain what the reasons are for technologies to be accepted or rejected by an organisation. This section will address the theoretical frameworks that exist for testing adoption on a new technology by an organisation. A theoretical framework is a structure that forms the foundation of a theory that is used in a research study.

An explanation of a theory is given by Borgatti (2005) by stating that a theory describes or gives meaning to something. Theories show how influences are connected and the relations between the influences. A characteristic of a good theory is movement from one element to the next.

A few adoption models where researched and analysed to see which one fits the research area best. The models researched were The Theory of Planned Behaviour, The Technology Acceptance Model, The Unified theory of Acceptance and Use of technology and The Diffusion of Innovation study. The most favourable model which was chosen for this research project is Heek's Design Reality Gap Model and explained in depth. The conceptual framework which is derived from the model is then explained.

3.2   Technology Adoption Models for Information Systems

Taherdoost (2018) says that a starting point for organisations is to distinguish requirements and the reception of new technologies by individuals thus there is an interest among academics to identify the factors that cause users to accept or reject a technology. Taherdoost further states that there are various models and frameworks that can be used to illustrate user adoption of new technologies and that the unified theory of acceptance and use of technology (UTAUT), the Technology acceptance model (TAM) and diffusion of innovations theory (DOI) were found to be most generally applied when testing adoption.

The following theories will be discussed in detail:

- The Theory of Planned Behaviour (TPB)
- The Technology Acceptance Model (TAM)
- The Unified Theory of Acceptance and Use of Technology (UTAUT)

- Diffusion of Innovations Theory (DOI)
- The Business Intelligence Extended Use Model (BIEUM)

3.2.1 The Theory of Planned Behaviour (TPB)

The theory of planned behaviour (TPB) was developed by Fishbein and Ajzen in 1985 (UK Cabinet Office, 2016) as an extension of the theory of reasoned action (TRA). The theories are described as the perception coupled with the behaviour of a person.

White et al. (2015) further explains that TPB is determined by resource accessibility, opportunities and skills. To achieve what was meant there was a vague awareness of the meaning of those resources, opportunities and skills.

3.2.2 The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was created by Fred Davis and Richard Bagozzi. TAM measures how willing people are to accept a technology. The theory measures two perceptions:

1)   Perceived Usefulness
2)   Perceived ease-of-use

Here Davis (1985) describes these perceptions:

o   Perceived usefulness: "The degree to which an individual believes that using a particular system would enhance his or her job performance"

o   Perceived ease of use: "The degree to which an individual believes that using a particular system would be free of physical and mental effort".

Grublješič and Jaklič (2015) agrees that TAM measures people's willingness to fully receive a new technology and further depicts the theory to be clear and simplistic and attests that this is the reason why the TAM is the most effective and extensively used theory in measuring technology and systems acceptance.

3.2.3 The Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) construes the intent an end user must utilise an Information System (IS), and subsequent utilisation is conducted. The UTAUT illustrates that four key factors (performance expectancy, effort expectancy, social influence, and facilitating conditions) directly determine the intention to utilise an attitude

towards an Information System. These four key factors can further be impacted by moderators (Gender, age, experience, and voluntariness of use) (Venkatesh, Morris, Davis et al., 2003).

Venkatesh, Thong and Xu (2012) agrees that UTAUT describes the critical determinants and possible events to predict how users intend on using technology and how technology is used in a collective use context.

UTAUT has been criticised by Bagozzi (2007) to potentially reach level confusion or disorder due to many independent variables.

van Raaij and Schepers (2008) further criticised UTUAT explaining that the collections of items created problems because items are not necessarily related but is used to show a psychometric for a specific factor.

3.2.4 Diffusion of Innovation Theory (DOI)

Diffusion of Innovation Theory (DOI) was developed by Everett Rogers. DOI clarifies how, why and at what rate the use of new ideas and technology disperses among people. This is determined by four main elements (the innovation itself, communication channels, time, and a social system). Adopters are then categorised by the extent to which the new idea is taken up. Categories are as follows: innovators, early adopters, early majority, late majority, and laggards (Rogers et al., 2019).

Wejnert (2002) sees DOI as discovering the impact of an innovation on a public level and a private level and the result thereof. Publicly the result comprises of collective participants like countries, states, organisations or social movements, usually involving welfare of the society. Privately the result comprises of the individuals or small communities. The new idea, method or device cares about betterment to the quality of life or social restructuring.

Chibaro (2015) says that the theory gives special consideration towards the effect caused by an individual's behaviour on a process of a period.

A comparison between two studies one by Boonsiritomachai et al. (2014) and another by Hatta, Miskon, Ali, et al (2015) identifies the most commonly used theories for measuring IT adoption and found a relation between when and where these theories are most applicable when doing research. This comparison is depicted in the table 3.1: Adoption Theories and Application.

Table 3.1: Adoption Theories and Application

Most commonly used theories used to measure IT adoption (Boonsiritomachai, McGrath and Burgess, 2014)	When and where the theories are most applicable (Hatta, Miskon, Ali, et al, 2015)
The Theory of Planned Behaviour (TPB): Most regularly employed	Individual perception of use of the system
The Technology Acceptance Model (TAM)	Individual perception of use of the system
The Unified Theory of Acceptance and use of technology (UTAUT)	Individual perception of use of the system
Diffusion of Innovation Theory (DOI)	Organisational perception of use of the system
Technology, Organisation and Environment (TOE) Framework	Organisational perception of use of the system

3.3 Theoretical Framework for this Study

3.3.1 Introduction

Subsequent to evaluating the various adoption models, it was found that limitations and mismatch to the specific research exist. An explanation on why each of the models that were researched were not used in this study:

- The Technology Acceptance Model (TAM) was not used because it is a model used for adoption prior to implementation. This research tested adoption after the system has been implemented

- The Theory of Planned Behaviour (TPB), although it is most regularly used, is only from the individual's perspective. The theory does not match this research study because it does not consider other factors. Another reason why this theory was a mismatch is because it is used to test adoption prior to implementation of the new system, this research was done post implementation.

- The Unified Theory of Acceptance and use of technology (UTAUT): Having characteristics in common with TPB, UTAUT once more also tests the individual's perspective of the new system. This study considered additional factors like the organisation and therefore this theory was a mismatch.

- Diffusion of Innovation Theory (DOI): According to Greenhalgh, Robert, Macfarlane et al. (2005), in excess of 4000 publications spread over many fields of study have been

written about DOI, which resulted in widely accepted differences to the original theory. McCullen, Ruckligde, Bale et al.(2013) agrees that the lack of unity in the use of the theory. This theory has not developed further, the inability to be asserted together without contradiction has made it difficult for it to be used with new problems, this is the reason why it was not used for this study.

Considering all the above-mentioned limitations of the said adoption models, this study finds relevance in the Design Reality Gap Model created by Richard Heeks. The next section discusses the Design-Reality Gap model which was adopted for this study.

3.3.2   Design Reality Gap Model

The theoretical framework that guided this research was Richard Heeks' Design Reality Gap Model. The model had the basis to identify the factors that influence the adoption of BI within government departments in South Africa. Hartley and Seymour (2011), agrees that the model was created particularly for developing countries to uncover how innovations in technology were accepted or rejected within the organisation.

Heeks (2002) says, how much change that takes place between the current situation prior to the e-government project and after the project took place is at the heart of whether the project succeeds or not. Whether or not the expectations of the project are met depends on the distance between the present circumstances and future expectations. The larger the distance between design and reality the bigger the possibility of failure, the smaller the distance the bigger possibility for success.

In order to comprehend the design-reality gaps of e-government projects, the following seven dimensions are important and adequate, also known as ITPOSMO

- **I**nformation
  - Information Quantity
  - Information Flows
  - Informal Information
  - Other Stakeholders: public sector clients, suppliers, or other collaborators

- **T**echnology
  - Computer Hardware
  - Computer Software
  - Telecommunications

- o   Other technology: manufacturing or transportation technology

- **P**rocesses
  - o   Information handling
  - o   Decisions
  - o   Actions/Transactions
  - o   Other Processes
  - o   Informal Processes
  - o   Other Stakeholders: public sector clients, suppliers, or other collaborators
- **O**bjectives and values
  - o   Operational Staff Objectives: goals or strategies
  - o   Senior Officials Objectives: goals or strategies
  - o   Other Stakeholder Objectives: goals or strategies
  - o   Operational Staff Values: organisational culture
  - o   Senior Officials Values: organisational culture
  - o   Other Stakeholder Values: organisational culture
- **S**taffing and skills
  - o   Staffing Numbers
  - o   Technical Skills
  - o   Management Skills
  - o   Operational Skills
  - o   Other skills: interpersonal skills
  - o   Knowledge
  - o   Other Stakeholders: public sector clients, suppliers, or other collaborators
- **M**anagement systems and structures
  - o   Management Systems
  - o   Management Structures
  - o   Informal Systems & Structures: those run by individuals for their own interests
  - o   Other Stakeholders: public sector clients, suppliers, or other collaborators
- **O**ther resources: time and money
  - o   Initial Investment: Capital
  - o   Ongoing Expenditure: Recurrent funds
  - o   Time: person-months/elapsed time
  - o   Other resources

Assembling these measurements with the concept of gaps, creates the model for understanding success and failure of e-government projects.
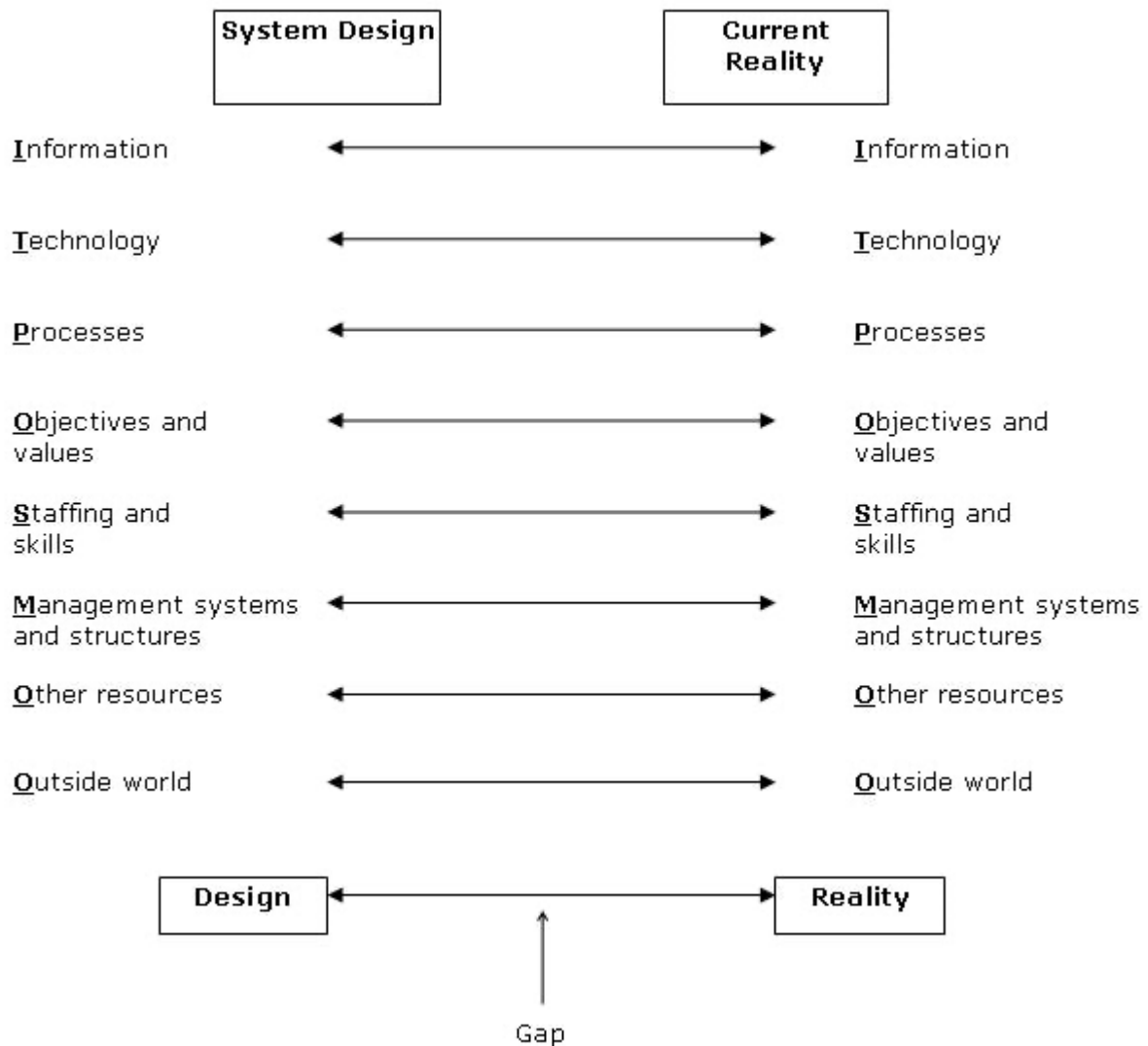
Figure 4: The ITPOSMO dimensions of e-government project design-reality gaps

In finding the 'gaps' between design and reality, the research discovered the barriers that exist in adoption of BI in a South African government department under study.

An evaluation comprised of inquiries identifying with the seven 'ITPOSMO' dimensions.

Two things were analysed for each of the 7 dimensions. Firstly, organisational reality, identifying what exists for a specific dimension at the present time of analysis. Secondly, the prerequisites within the idea of the e-government application.

For each dimension, a score was assigned to indicate the size of the design-reality gap. The score ranging from zero to ten. Table 3.2 is a guide to show what the scoring means:

Table 3.2: Gap rating and meaning

Rating/Score	Meaning
0	no change between the design proposal and current reality
5	some degree of change between the design proposal and current reality
10	complete and radical change between the design proposal and current reality

Table 3.3 explains what Heeks (2008) says should be considered when scoring the dimensions:

Table 3.3: Dimensions and considerations

Dimension	Considerations
Information	The comparisons between the information used currently and information used within the e-government system
Technology	The comparison between what was needed from the e-government system and the actual situation
Process	The comparison between what was essential for successful implementation of the e-government application and the actual situation
Objectives and values	The comparison between what key stakeholders required for successful implementation of the e-government application and the actual objectives and values.
Staffing and skill levels	The comparison between skills required for successful implementation of the e-government application and the actual skills available at the time of implementation
Management systems and structures	The comparison between management systems that are expected to exist for successful implementation of the e-government application and the actual management systems that are available at the time of implementation.
Time and money dimension	The comparison between how much money and time is needed for a successful implementation of the e-government application and the actual amount of time and money available

3.4   Conceptual Framework

The conceptual framework included 5 out of the 8 dimensions in the Theoretical Framework.

Using Heek's Reality-Gap Model as a Theoretical framework, this study therefore derived the following conceptual framework:

The below constructs guided the data collection and the data analysis and included the following dimensions:

Technology

Addressing Technology, the research aimed to identify:
o   The willingness to take on new technology
o   The frequency of utilisation of the new technology
o   Reasons for low utilisation

Processes

Addressing the processes, the research aimed to:

o   Identify whether the new technology enhances the existing processes

o   Test the openness to change existing processes within the organisation in order to utilise the new technology

Objectives and Values

Addressing the Objectives and Values, the research aimed to:

o   Identify whether the new technology supports the objectives and values of the organisation

Staffing and Skills

Addressing the Staffing and Skills, the research aimed to:

o   The accessibility of the new technology by users

o   The awareness of the existence of the new technology by the users

o   The availability of training on the new technology to the users

Management Systems and structures

Addressing the Management Systems and structures, the research aimed to:

o   Identify whether the new technology supports the existing Management Systems and structures
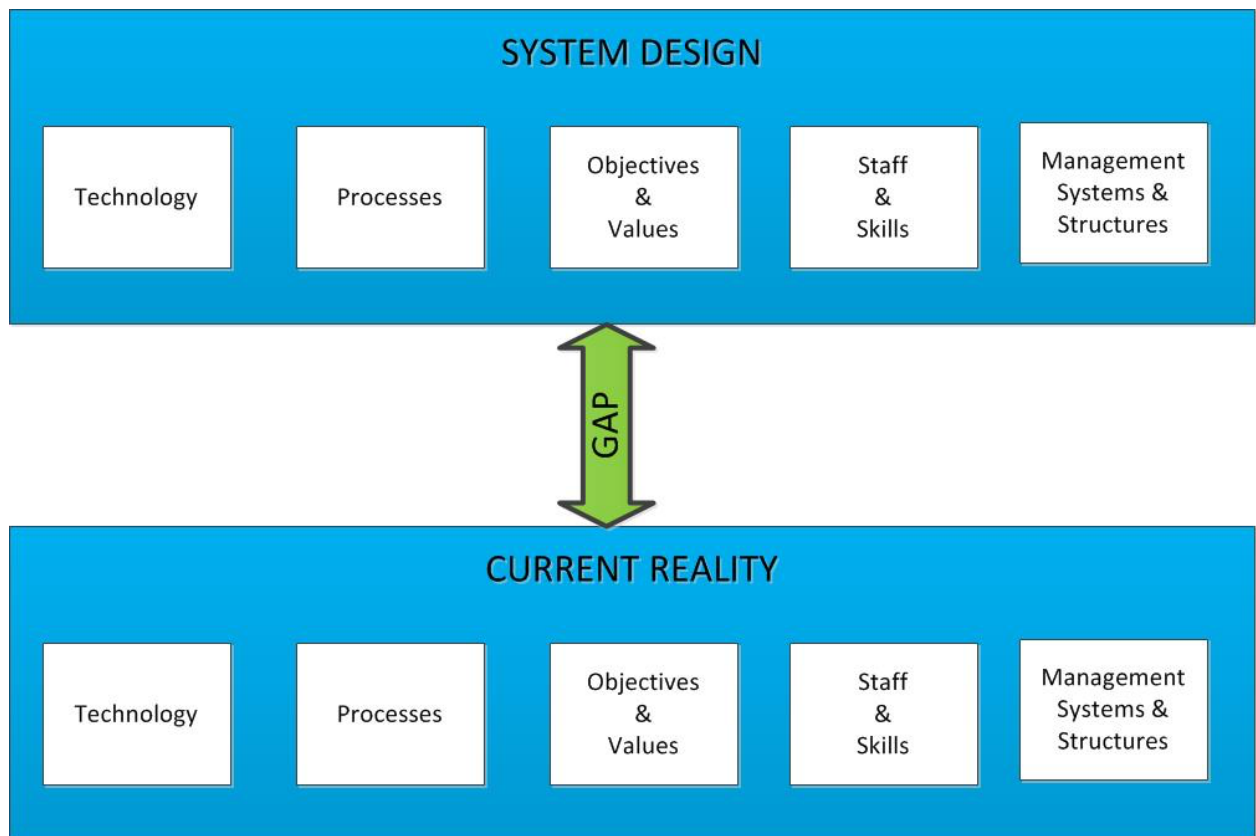
Figure 5: Conceptual Framework for this research study

3.5   Chapter Summary

This chapter brought forth various models that exist for testing Information System adoption. In conclusion of the different models a comparison was depicted covering when and where a specific model is more suitably used. After the different models were explored, the researcher goes on to explain why each of the models are not suitable for this study. The researcher then delved into the framework that was chosen for this study, The Design Reality Gap Model. The Design Reality Gap model was defined by ITPOSMO. The researcher explained ITPOSMO the dimensions that tested when using this model, in other words: Information, Technology, Processes, Objectives and Values, Staffing and Skills, Management Systems and Structures, Other Resources. The meaning of each dimension was explained by doing a further breakdown. The concept of finding the gaps between the design and the reality of the system is then explored. Thereafter the conceptual framework is was introduced, here the researcher specifies which of the dimensions were used in the study and how each dimension identified the aim of the research.

With the Theoretical Framework being outlined, the methodology and techniques used to carry out the research are presented the in next chapter.

CHAPTER FOUR: RESEARCH DESIGN AND METHODOLOGY

4.1   Introduction

This section shows how the researcher conducted the study through explaining the routes taken in order to arrive at the analysis of the data. The research design follows the Onion approach by Saunders, Lewis and Thornhill (2019). The section is therefore split into various units.

The research design is explained by the philosophy, approach, methodology, strategy, data collection and data analysis. The research was viewed through the lens of an interpretive world view, clarified thereafter in section 4.2.1. Next, the empirical setting describes the backdrop to which observations and measures were held. The researcher then declares how they conducted themselves during the research process in the research setting. A specific description is given of the entity that was researched. The processes employed for gathering data is then outlined. An explanation of the post data collection and the   two analysis processes that were used. The soundness of the analysis processes is explained, and lastly the credibility of the research process is substantiated.

4.2   Research Design

The sub-sections which follow describe the research methodology followed in this study as depicted in the research onion. The sub sections are research philosophy, approach to theory development, methodological choice and research strategy and finally data collection and analysis methods. Figure 6 depicts the Onion approach to the research design:
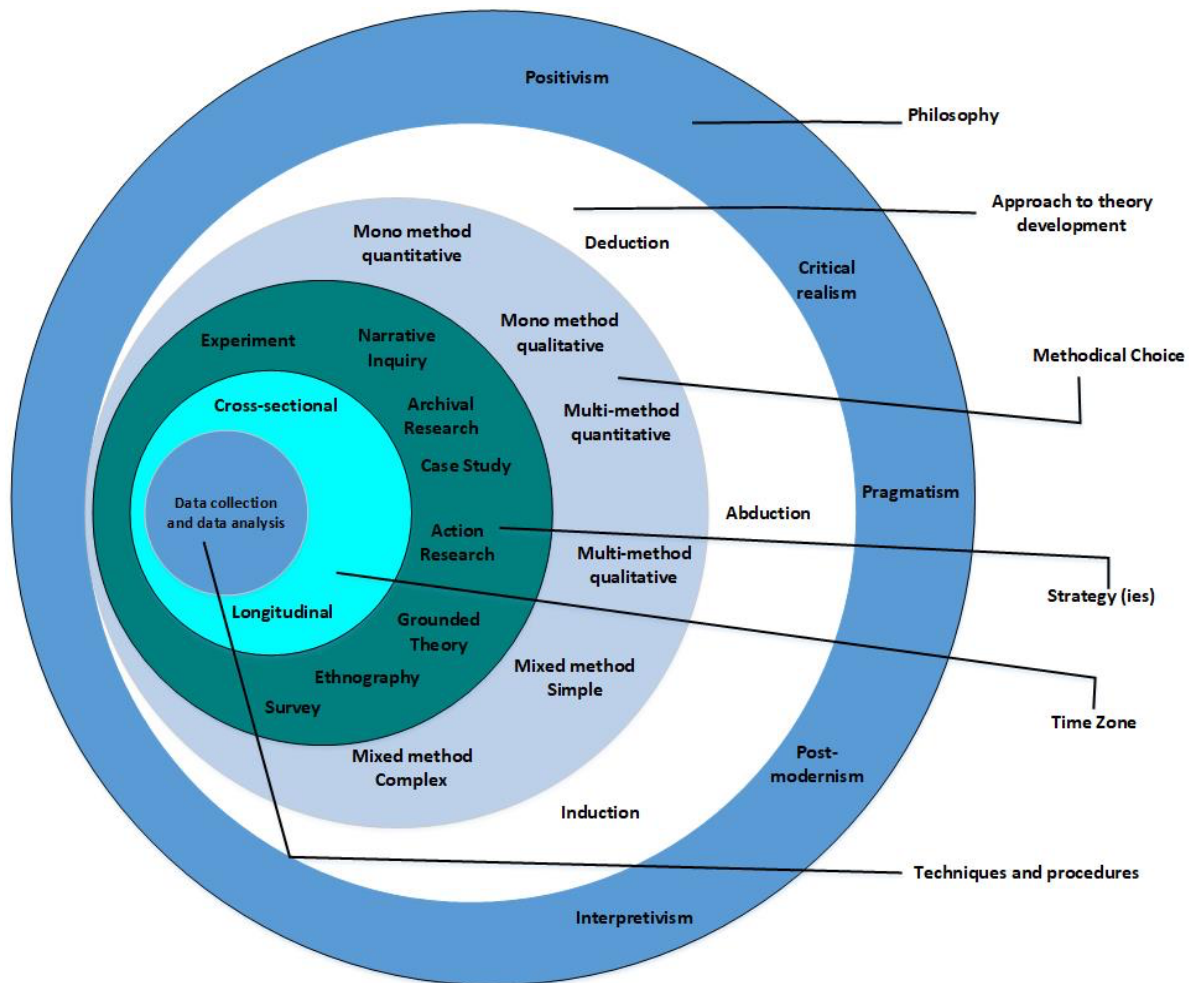
Figure 6: Research Onion (Saunders et al., 2019)

The research onion developed by Saunders et al. (2019) and depicted in Figure 6 outlines the way research can performed.

Melnikovas (2018) describes the research onion as a network of principles and hypothetical philosophies that gives guidance when formulating the research questions and provides a foundation for selecting research methods.

The layers of the research onion are further explained by Melnikovas (2018) as follows:

1) Research Philosophy:

   Shapes the foundation of the research by outlining ontology, epistemology and axiology. Ontology can be described as the nature of being or things that have existence. Epistemology is the theory of the nature and what supports the knowledge, referring to limits and validity. Axiology is the study of the nature and ethics of research.

2) Approach to theory development:

The research philosophy indirectly indicates what the approach of research will be. Approaches usually include deduction, induction and abduction. Deduction approach means that the study begins with a known theory, the theory gives rise to a question or hypothesis, in order to assure the validity or refute the theory data collection will take place. Induction approach begins with a question, data is collected in order to answer the question and to shape a theory. Abduction begins with an astonishing reality and sways between deduction and induction to derive the most probable explanation.

3) Methodical choice:

Decision on whether quantitative or qualitative methods or varied blends of the methods will be employed for the research.

4) Strategy:

The manner of how data is gathered and analysed. Strategies include experiment, survey, archival research, case study, ethnography, action research, grounded theory, narrative inquiry.

5) Time horizons:

The period within which the research will be conducted can either be cross-sectional or longitudinal. Cross-sectional or short-term study has a data collection time frame of a specific point in time. Longitudinal time horizon means that data is collected iteratively over a long period of time.

6) Techniques and procedures

The way data was collected and analysed. It includes the types of data used like primary or secondary data, selection of sample groups, designing or data collection instruments (e.g. questionnaires), preparing of interviews, etc.

The research onion therefore aids in choosing the most appropriate instruments, strategies and guiding principles for a specific research area or topic. Following the research onion for this study, below describes what was selected for the individual layers:

1) Research Philosophy: Interpretivism
2) Approach: Induction
3) Methodical choice: Mixed method of qualitative and quantitative
4) Strategy: Case study
5) Time horizon: Cross-sectional

6) Techniques and procedures: Interviews and survey

The next sections delve deeper into the above specified layers of the research onion that were selected for this study.

4.2.1 Research Philosophy

The interpretive worldview is portrayed by Kaplan and Maxwell (2005) as utilising procedures that align with meaning instead of calculating. An example could be interviewing or participant perception, where there is a subjective connection between the researcher and the subjects. Independent or dependent variables are not decided on prior to the observations or interviews, but focus is rather placed on the full multifaceted nature of how humans make decisions as the setting develops.

Thorne (2016) says that the interpretive view does not mean you are biased or unbiased but rather it is finding significant and applicable understanding of thoughts that are of focal significance to a practice.

In order to research adoption of a new idea by people, it is necessary to understand why and how people have received or rejected this idea. An interpretive study is therefore relevant in researching this phenomenon.

4.2.2   Research Approach

An interpretivist and the use of a case study on a government department in South Africa were analysed by conducting mixed-methods research, quantitative and qualitative techniques. The qualitative method was deployed with an inductive reasoning conducting interviews and using the dimensions defined by Heek's Design-Reality Gap to structure and guide interview questions. In addition, the quantitative technique was used to find the perceived gaps in the dimensions defined by Heek's Design-Reality Gap.

This study's main question is *Why is the government institution in this study slow in adopting Business Intelligence as a decision-making tool?* An inductive approach was adopted to answer this question by gaining an in-depth understanding of what the users perceive as the barriers of adoption are, whether Business Intelligence is regarded a benefit to the organisation and why existing methods for decision making might be preferred.

4.2.3   Methodological Choice

The technique of using mixed approaches like both qualitative and quantitative methods, substantiate and gives firm evidence to the conclusions of a researched area. As a result, speculation is not part of the analysis of the data. The resultants provide the researcher with ability to search into, and gain understanding of a specific story (Du Plooy-Cilliers, Davis and Bezuidenhout, 2015).

The validity and the reliability of the study is enhanced when data sources of a study have multiple origins. For this study the qualitative approach taps into the interpretive results derived from the interviews conducted. Additionally, the quantitative approach taps into the statistical gathered from the Design-Reality gap analysis and enables the researcher to identify and describe emerging trends that play out from the data.

4.2.4   Research Strategy

The research was conducted in an empirical case setting of a government department in South Africa that has implemented a Business Intelligence System. The case study is a government department within the Western Cape of South Africa. The case study has implemented a Business Intelligence platform called Oracle Business Intelligence Enterprise Edition (OBIEE) that delivers full BI capabilities.

4.2.5   Data Collection

4.2.5.1 Unit of analysis

All stakeholders of the BI system were involved in the study. Permission to do research and collect data was granted by the director of the government department, on condition that participants were not forced to participate in the data collection process. Participant individual consent was also required in order to provide the researcher with information.

Therefore, further to the consent given by the directorate, potential participants were individually and asked if they would like to participate in the research. The participant could choose which method of interviewing recording they were most comfortable with, either by recording device or written notes. Table 4.1 respondents that were contacted via email or personally, to set up interviews:

Table 4.1: List of Interview Respondents and Roles

Role	Number of Respondents
Director	1
Deputy Director	2
Manager	3
Super user	2
IT Specialists	2

4.2.5.2 Data collection

Data was collected by ensuing a case study of a South African government department.

The data collected were from the participants who utilises the Business Intelligence system, this is a small group in the organisation therefore data was gathered by doing interviews and surveys completed by all participants.

Two types of data were collected, qualitative and quantitative data. The qualitative data complements the quantitative data.

The theoretical framework, the Design-Reality Gap model, is designed to collect data quantitatively.

The quantitative data was also collected using the theoretical framework, The Design-Reality Gap model as a guide to structure the questions in a survey.

The Conceptual Framework which comes from the Design-Reality Gap model, frames the adoption of BI and helped in guiding and defining the questions that needed to be addressed in the interviews. The qualitative data was collected by using the conceptual framework. Interviews were the only way data was collected because it is a collection of perceptions of Technology, Processes, Objectives and Values, Staffing and Skills, Management systems and structures, and Other Resources and this created a rich picture of the perceptions.

The qualitative data collected using the conceptual framework therefore supported the quantitative data collected using the theoretical framework.

Table 4.2 depicts the research questions and the methods used to answer the questions.

Main research question: *Why is the government institution in this study slow in adopting Business Intelligence as a decision-making tool?*				
Sub Questions	**Source of Data**	**Research Technique**	**Research Resources**	**Participants**
What are the barriers to BI adoption within the government institution under this study?	• Literature • Research Case	• Read, analyse • Interviews • Survey	Journals, Internet, books, government research, government officials, Government documentation, IT experts	
What does the government institution in this study regard the benefit of Business Intelligence?	• Literature • Research Case	• Read, analyse • Interviews • Survey	Journals, Internet, books, government research, government officials, Government documentation, IT experts	Government Directors Government Officials Government IT Staff
What methods for decision-making does the government institution in this study prefer?	• Literature • Research Case	• Read, analyse • Interviews • Survey	Journals, Internet, books, government research, government officials, Government documentation, IT experts	

Table 4.2: Research Questions and Methods

4.2.6   Data Analysis

The unit of analysis was a department within government. The data was analysed by doing a qualitative and a quantitative study seeking the WHY and HOW. The data exposed by the research was qualitative using words and descriptions for analysis the data was further complemented by the quantitative analysis highlighted within this research.

4.2.6.1 Qualitative Analysis

Qualitative Data was analysed using thematic analyses. Themes emerged from the Design-Reality Gap analysis. The emerging themes showed the barriers that exist.

Boyatzis (2000) describes thematic analysis as a way of doing qualitative analysis on data by grouping and exposing the data in themes or patterns.

Alhojailan (2012) further explains that Thematic Analysis is applicable when samples are induced and described prior to starting the research. Thematic analysis makes relating various views or ideas of contributors with collected data achievable.

4.2.6.2 Quantitative Analysis

Quantitative data was analysed using descriptive statistics. Descriptive statistics summarises the collection, analysis, interpretation and presentation of the sample of numerical data. The findings derived from the quantitative data analysis increases the credibility and the reliability of the research and supplements the qualitative results.

4.3   Empirical Setting

The case study is a chief directorate that forms part of the administration of the Department of Transport and Public works.

The vision of the case study is "to become the leading government motor transport service". Their mission is "To be the leader in government motor transport services by providing quality integrated and cost-effective motor transport to provincial and national client departments/institutions and to do so by creating a pleasant, safe and interactive environment where staff are offered opportunity to develop and improve themselves".

The case study is a trading entity generating income through the provision of vehicles to other government departments of the Western Cape and some National departments and does not rely on government funding. It is however, still under the governance of the Western Cape government and the South African government. Vehicles are hired either on a permanent or temporary basis. The entire lifecycle of the vehicle is managed by case study.

4.3.1   Business Units

The government department of the study has business units comprise of the following business units:

- **Fleet Operations**

The government department of the study has a total of 5333 active vehicles in their fleet. A total of 3994 vehicles travel more than 1000 kilometres per month. The fleet has an effective utilisation of 72 %. A total 6698 vehicle inspections were performed on the Fleet for the financial year. The government department of the study bought 771 new vehicles and sold 738 vehicles, due to end of life.

- **Fleet Finance**

The Fleet Finance team deals with the procurement of vehicles. Maintains and approve budgets related to the government department of the study. Billing of the clients and collecting the money owed to case study by departments for the usage of vehicles. Finance also deal with payment of Suppliers to the government department of the study. Auditing and governance are also controlled by this department.

- **Risk Management**

The government department of the study is self-insured and therefore has a team of staff members who deal with any form of loss experienced by or of their vehicles. According to the annual report for the financial year of 2018/2019, the government department of the study's risk team processed the following:

1)   2847 accident and loss cases
2)   79 third party claims
3)   5694 traffic violations
4)   174 alleged misuse incidents were recorded

- **Client Liaison**

The government department of the study has a client liaison department that ensures that the client needs are met. According case study's annual report 2018/2019 the client liaison team assured that 149 transport officials were trained in Fleet Operations and provided 23 guideline circulars to their client. Transport officials work for client departments of the case study. They manage the operations of the vehicles and see that the vehicles are properly maintained and the necessary information about the vehicle is up to date. This team ensures that the clients are always informed about the government department of the study and the vehicles that they

use. One way of ensuring information is shared is via Client Forums, of which 6 was held in the financial year 2018/2019. Client Feedback is achieved by doing surveys of which 1 Client survey and 213 training surveys was conducted in the previous financial year. 624 users existed on the Fleet Management system the clients use.

4.3.2   Case Study Staff

As at 31 March the government department of the study had a total number of 115 staff members. This total includes, all the permanent, part-time and contract employees.

Staff can be grouped into 5 skill levels with the following totals per group.

1) Levels 1 - 2: Unskilled and defined decision making, total of 4 employees

2) Levels 3-5: Semi-skilled and discretionary decision making, total of 61 employees

3) Levels 6-8: Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents, total of 41 employees

4) Levels 9-12: Professionally qualified and experienced specialists and mid-management, total of employees

5) Levels 13 -14: Senior management, only 1 employee

The entire organisation consists of 115 employees but there are only 10 BI users. Discussed further in the next section The Case Study Business Intelligence users.

Table 4.3: Number of employees per occupational level as at 31 March 2018 (Western Cape Government, 2018)

Occupational Level	Number of Staff
Unskilled and defined decision making (Levels 1-2)	4
Semi-skilled and discretionary decision making (Levels 3-5)	61
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents (Levels 6-8)	41
Professionally qualified and experienced specialists and mid-management (Levels 9-12)	8
Senior management (Levels 13 -14)	1
Total Staff	115

4.3.3   Business Intelligence users of the case study

BI is a tool used for strategic decision making therefore management and skilled users should us BI at the case study usage of BI should be by the below mentioned groups of people. BI userbase comprises of Chief Director, Directors, Deputy Directors, Super users and IT Staff. Table 4.4 shows the number of BI users at the case study by skill level.

Table 4.4: BI User Breakdown by Skill

Skill Level	Number of people
Senior Management (Levels 13- 14)	2
Professionally qualified and experienced specialists and mid-management (Levels 9 -12)	6
IT Staff	2

4.4.4 System Architecture of the case study

The system architecture of the case study includes Internal Source Systems and external Source Systems. These comprise of:

4.4.4.1 Data sources

Internal Data Sources and Functions

- **Fleetman:**
  o   The operational system and handles the management of the fleet
  o   Information about vehicles' life is stored here
  o   General Hire
  o   Which client has the vehicle
  o   Services done to the vehicle
  o   Maintenance and repairs
  o   Losses and accidents
  o   Inspections on the vehicle
  o   Bank cards assigned to vehicles
  o   Creates billing information
  o   KM's driven by the vehicle
  o   Duration of use by clients
  o   Toll fees charged per vehicle

o   Claims to clients for accidents and/or losses

- **GoFin (Oracle E-business Suite) is the financial system:**

o   Asset life cycle

o   Supplier chain

o   Client Billing

o   Accounts Receivable

o   Accounts Payable

External Data sources and Functions

- Digicore: Vehicle Tracking

- AFS: eFuel monitoring

- Nedfleet: Vehicle Maintenance and Repairs

- M2North: Handles transactions between AFS and Nedfleet

- Nedbank: Fuel card transactions, Bank card ordering and cancelling

- The Business intelligence is handled by Oracle Business Intelligence Enterprise

    Edition

4.4.4.2 BI Architecture of the case study

Sisense Inc. (2020) describes BI Architecture as the framework that organisations use to describe their data feeds, information administration and all the technologies that holds together their BI system

The data sources previously described are feeds for the data warehouse.

Dedić and Stanier (2016) explains that a data warehouse is a central element that forms part of BI and is a system that enables reporting and data analysis

BI Architecture is made up of 3 main components:

1.   Extract Transform Load (ETL)
2.   BI Server
3.   BI Presentation Layer

Extract Transform Load (ETL)

The ETL component where data is received from data sources via direct access to the sources. Here data goes through a process of extracting from sources (data interfacing), staging in data warehouse and loading into the data models that have been defined in the

data warehouse. The extracting, transforming and loading of the data into the data warehouse is handled by a tool called Oracle Data Integrator (ODI).

ETL utilises staging, data integration and access layers to hold main and important functions. For staging, a database is used to stage raw data derived from the source systems. For integration, data is transformed and stored as another data source called the "operational data source". Post integration data is moved to another storage place which will typically be the warehouse. Here data is arranged in groups, referred to as dimensions, and into facts and aggregate facts. Certain groups of these entities can form a star schema. The access layer is where you can see and analyse the data (Patil, Rao and Patil, 2011).

BI Server

The data models defined in the ETL process can now be mapped to Business defined subject areas. The BI Server is where all business/organisational metrics and KPI's are defined. Logical mapping of the data models to these metrics is done within the BI server environment. The server forms part of Oracle Business Intelligence Enterprise (BI/DW Insider, 2011).

BI Presentation Layer

The presentation layer is where the business user gets to use dashboards that displays the data. Analytics such as trend analysis, comparative analysis and analytic workflow can be done on the data. Reports can be extracted. Data on the presentation layer is merged from all data sources to give a single source of truth. The presentation layer is a clear view of all business information in one place, where the data can be used to aid strategic decision making.

Information is accessible through the Presentation layer using subject areas. Subject areas mirrors of the business models, these areas can be accessed based on roles and only show business areas that is specific to a role. Information is grouped to form the subject areas and the information can therefore be arranged in a manner that is clear to the users (Oracle, 2020).

Figure 7 shows the internal and external data sources that feed information into the Business Intelligence architecture.
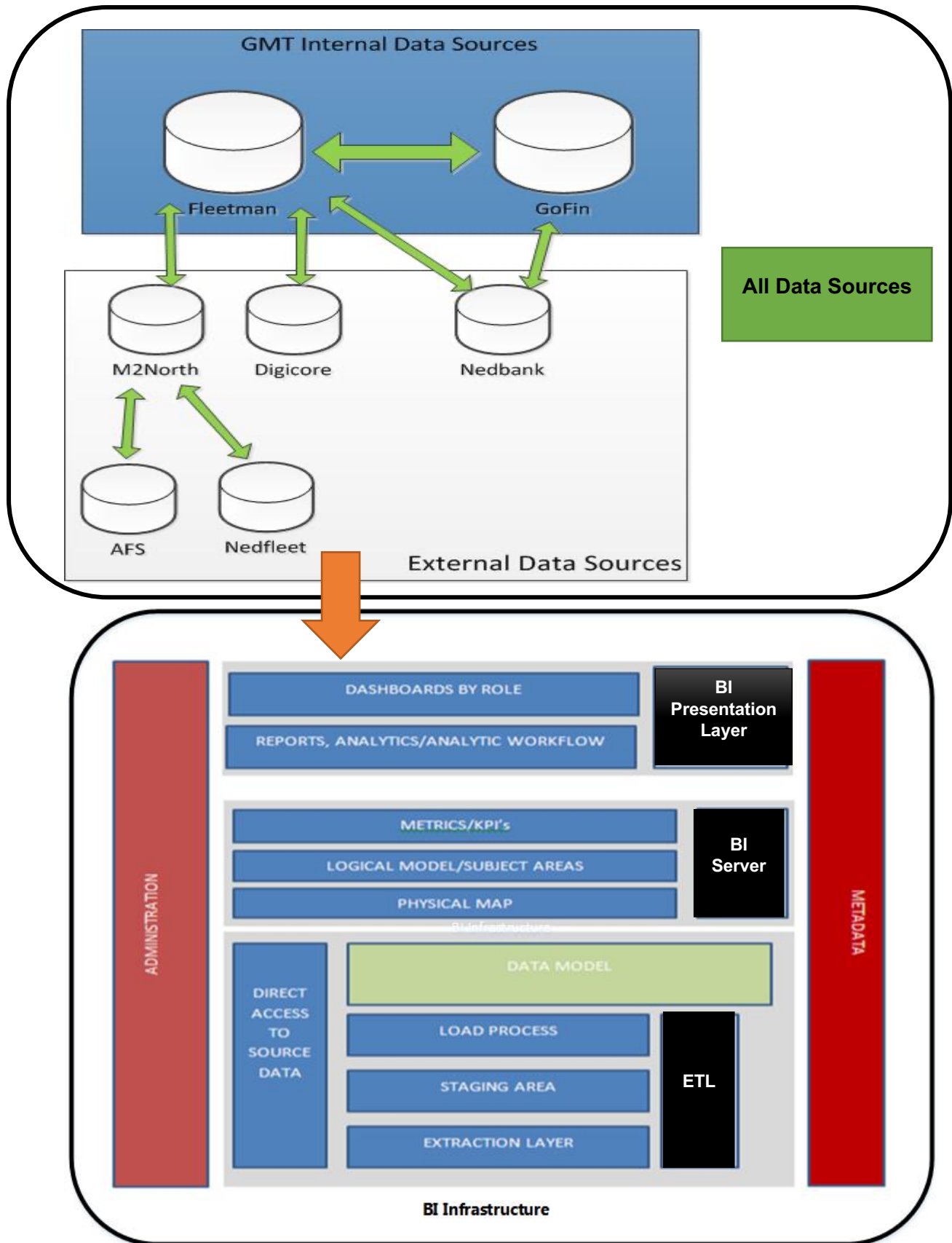
Figure 7: Internal and External Data Sources and the BI Architecture of the case study

4.5   Ethical Considerations

The researcher underscored the ethics and principles of the Faculty of Informatics and Design of CPUT as well as the general principles of research science whilst conducting this research.

Business Intelligence being a strategic initiative within an organisation, is intended to increase an organisation's competitive edge, therefore it is important to keep the individuals and the organisation contributing to this study confidential.

The organisation will therefore not be disclosed and will remain strictly confidential. Participants will remain anonymous and no identities will be revealed in data collection.

The data management protocol for this research will be to keep research data for a period of 5 years. After this period research data will be disposed of by deletion from all storage spaces.

4.6   Validity

Sarmah and Bora Hazarika (2012) describes a test as a measuring instrument, and further explains that validity is one crucial characteristic that a measuring instrument should bear. A test is valid when it fills the need for which it is outlined. Alhojailan (2012) explains that when doing a Thematic Analysis, the themes need to be assessed to ensure that the full context is shown. They advise on utilising an external assessor or analyst to check and determine the themes. To ensure validity in the research an external analyst will be used assist in determining the validity of the measures that will be used in the study.

In order to extract the information collected from the data and draw conclusions and answer the research question of *Why is the government institution in this study slow in adopting Business Intelligence as a decision-making tool?* the research attempts to discover barriers of adoption, the benefits as perceived by the participants and preferred methods of decision-making. The design-reality gap tool is used to identify the themes with the largest gaps between what was expected from Business Intelligence and what was achieved after implementation of Business Intelligence. The larger gaps showed the areas where barriers exist. The interview questions used the same predefined themes adopted from the design-reality gap tool to ask questions specific to the predefined themes to uncover the perceived benefits and reasons for preferred decision-making.

4.7   Reliability

The significance of showing the reliability in the data analysis process is that it complements the validity of linking the raw data to the themes in an unbiased manner. When the reliability

of the analysis and other research processes is enhanced it will result in accurate, clear and trustworthy thematic analysis (Guest, MacQueen & Namey, 2012). To ensure the reliability of data this research used codes to link the data to the themes.

The research sought to discover the reasons a government institution in South Africa is slow to adopt Business Intelligence as a decision-making tool. Subsequent questions about barriers, benefits and preferred methods were asked to delve deeper into the reasons. The technique used for answering the research questions was the design-reality gap technique. The design-reality gap gave structure to the questions that were posed to the participants. It provided upfront themes, which identifies areas that barriers could exist in.

4.8   Chapter Summary

This chapter delineated how the researcher used a predefined method and technique to complete the research, comprising of the Research Design and Methodology.

The Empirical setting is described in detail by looking at Business Units, staffing structure, system users, system architecture, system data sources and the BI architecture that are specific to the case study.

The researcher employed a mixed methods research approach by using both Qualitative and Quantitative data collection and analysis methods. Two types of data collection instruments were used to bring the data together. For the qualitative data interviews where held where all the users of the BI system participated. For the quantitative data a survey was done where all the users of the BI system participated. Qualitative data was analysed by using Thematic Analysis. Qualitative data was analysed using Descriptive statistics.

The next chapter, Chapter 5 presents the Research Findings and Analysis for the two types of data analysis methods utilised for the study.

CHAPTER FIVE: RESEARCH FINDINGS AND ANALYSIS

5.1 Introduction

Chapter five introduces the descriptive and interpretive analysis results and discusses the findings thereof. The Research Findings and Analysis chapter was divided into two main sections: 5.2 Thematic Analysis of Qualitative Data and 5.3 Analysis of Quantitative Data. Section 5.2 explains the Thematic Analysis processes, and further explains each theme explored. Themes from the theoretical framework explored were Technology, Process, Objectives and Values and Staffing and Skills. At the end of the interviews participants were asked if they had any additional comments to make, regarding Business Intelligence and adoption thereof by a government department. Through the thematic analysis process an exploration of each theme was made by asking questions. A dominant status for each theme emerged from the answers.

Section 5.3 follows and explains the process adhered to perform the analysis of quantitative data using descriptive analysis. Subsequent to that, discussions are made regarding dimensions tested and results. Dimensions tested in the qualitative analysis were Technology, Process, Objectives and Values, Staffing and Skills, Management and Systems Structures and Other dimensions. The survey is depicted by showing each dimension tested with its corresponding question, depicted is a figure from the survey and the calculated gap result.

5.2 Thematic Analysis of Qualitative Data

5.2.1 Introduction

Ryan and Bernard (2003) explains that themes can emanate from both data (an inductive approach) and from the researchers understanding of the phenomenon of interest (an a priori approach). A priori themes are derived from specific phenomenon being researched, from already recognised explanations found in current academic body of knowledge, and from researchers' principles, theoretical position and individual exposure experiences (Bulmer 1979; Strauss 1987; Maxwell 1996). In this research, a priori approach was used based on Richard Heeks' Design Reality Gap Model.

The qualitative data collected from interviews were analysed using thematic analysis, to identify a pattern within the data, where emerging themes became the categories for analysis. The themes emerged from the dimensions described in the Theoretical Framework, Richard Heeks' Design Reality Gap Model. The themes were identified as:

- Technology

- Process

- Objectives and Values

- Staffing and Skills

- Management Systems and Structures

- Additional Comments Related to BI Adoption

Based on the responses from participants for each theme, further thematic analysis was performed in order to identify a status for each of the prior identified themes.

Fereday and Muir-Cochrane (2006) describes thematic analysis as discovering repeating characteristics in the data. The characteristics of the like creates groups from which the themes arise.

The process followed for the thematic analysis is outlined below by Braun and Clarke (2006) as the "Phases of Thematic Analysis":

Table 5.1: Thematic Analysis Phases

Phase	Process Description
1. Familiarising yourself with your data	If applicable, record interview responses in writing. Read through recorded data A repetitive process of reading through and make notes on the data is performed
2. Generating initial codes	Finding data that relates to each other or are the same and assigning codes to the data sets
3. Searching for themes	Critically compare codes to create groups which become the themes
4. Reviewing Themes	Create a thematic 'map' by assessing whether themes relate to the codes identified and the whole data set
5. Defining and Naming Themes	In order to improve each theme, a continuous assessment of the themes is performed. As a result, theme definitions and names become apparent
6. Producing the report	The concluding assessment by drawing out specific illustrations from the extracts. Tying the analysis back to the research question and literature. Developing an educated narrative of the analysis

Interview questions were structured based on the themes defined in the Design-Related gap model as dimensions. Concentrating on the following dimensions:

- Technology

- Process

- Objectives and Values
- Staffing and Skills
- Management Systems and Structures

At the end of the interview, participants were given the opportunity to make additional comments related to adoption of Business Intelligence in the department that they work in.

The results of the interview data are presented in the next sections as per the themes described.

5.2.2 Technology Theme

Table 5.2: Technology Theme and Statuses

Theme	Question	Status
Technology	a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	▪ Willingness to use BI
	b. Does your team utilise the Oracle Business Intelligence Tool	▪ No utilisation of BI
	c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	▪ No utilisation of BI ▪ Organisation operates in Silos ▪ Unaware of BI
	d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	▪ No education ▪ Organisation operates in Silos ▪ No Communication ▪ Slow Acceptance

For the Technology theme the statuses show there is a willing to use the business intelligence tool, despite the willingness to use the tool there is no utilisation of the tool. Other emerging statuses showed that no utilisation was due to the organisation operating in silos and therefore parts of the organisation are unaware of the Business Intelligence capability and availability. The main reasons for a low usage percentage was identified as no education related to Business Intelligence, no communication, organisation operating in silos and slow acceptance of new technology

5.2.3   Process Theme

Table 5.3: Process Theme and Statuses

Theme	Question	Status
Process	a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	▪ Willing to change
	b. Explain reasons why there may be a resistance to change the processes	▪ No resistance to change
	c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	▪ Process Enhancer

For the Process theme the status show that there is a willing to change process in order to use the new technology, the respondents showed no resistance to change and they felt that the Oracle Business Intelligence tool could be a process enhancer. There were no dominant barriers identified for the process theme.

5.2.4 Objectives and Values Theme

Table 5.4: Objectives and Values Theme and Statuses

Theme	Question	Status
Objectives & Values	a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	▪ Supports Objectives and Values
	b. If 'Oracle Business Intelligence tools does support the objectives of government department you work in', please explain how the objectives and values of government department you work in is supported.	▪ Process Enhancer
	c. If 'Oracle Business Intelligence tools does not support the objectives of government department you work in ', please explain why the objectives and values of government department you work in is not supported.	▪ BI supports Objectives and values of the organisation

For the Objectives and Values theme the status show that the Oracle Business Intelligence tool supported the objectives and values of the organisation because participants viewed the technology as a process enhancer.

5.2.5 Staffing and Skills Theme

Table 5.5: Staffing and Skills Theme and Statuses

Theme	Question	Status
Staffing & Skills	a. Has your team been trained to use the Oracle Business Intelligence Tool?	▪ Not trained
	b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	▪ Not aware of training
	c. Do you know why your team may not have been given the opportunity to skill up in order to use the Oracle Business Intelligence tool	▪ Communication ▪ Unaware of training ▪ Unaware of who is responsible for training ▪ No training focus/priority

For the Staffing and Skills theme the status show that, related to the Oracle Business Intelligence tool, the respondents has not received training, they were not aware whether training existed, they did not know who is responsible for training, they deemed the reason for not having an opportunity to train was due to there not being a focus on training and training not being a priority.

5.2.6   Additional Comments Theme

Table 5.6: Additional Comments Theme and Statuses

	Question	Status
Additional Comments related to adoption of BI	Anything extra to add	▪ No Communication ▪ Lack of Openness/Transparency ▪ No awareness created ▪ Lack of Leadership ▪ Decisions about BI must be driven by the business ▪ Decision making process takes too long ▪ Business should be the owner of BI

When exploring any additional comments, the respondents had related to the adoption Business Intelligence in the department they work in, the status show that communication was non-existent, there was a lack of openness and transparency about the new technology. Additional statuses identified were that there was a lack of leadership to drive the new technology, respondents felt that decisions related to BI should be driven by the business but there is no business owner for BI and decision-making process takes too long.

5.3 Analysis of Quantitative Data

5.3.1 Introduction

The data was collected through a survey done by the participants. 7 Dimensions were tested. Each dimension had questions assigned to it in order to discover the gap rating. Each dimension had an introduction to help the participant when making the selection. The introduction guides them in what to consider when selecting the rating. Participants answered the questions by assigning the gap rating between the design of the technology and, what in the technology has to offer. For each dimension the gap rating given by each participant was added up and divided by 10 for 1 gap selector or 20 for 2 gap selectors for a dimension, to give the average gap rating selected by participants per dimension. The survey introduction message and the Dimension Rating Selector as depicted in the figures below:

Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions

Figure 8: Survey Introduction Message
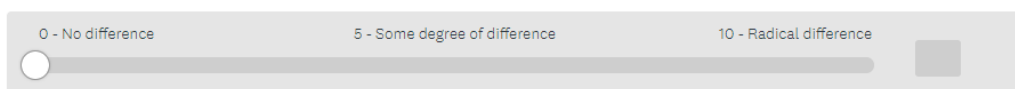
Figure 9: Dimension Rating Selector

The next sections depict the survey questions, the Gap rating result and interpretation for each dimension tested. The interpretations were based on the Richard of the following dimensions tested:

- Information
- Process
- Technology
- Objectives and Values
- Staffing and Skills

- Management and Systems Structures
- Other Resources

Followed by the Dimension Gap Analysis Overview.

Information Dimension Gap Analysis

Table 5.7: Information Dimension Gap Analysis

Dimension	Survey Question	Gap Rating Result
Information	**Information Dimension** When selecting your gap rating for the Information dimension the following should be considered: Information Quantity, Information Flows, Informal Information and Other Stakeholders: public sector clients, suppliers, or other collaborators	**5.6**

Participants were asked to consider aspects of Information in relation to the BI Tool and whether they had experienced a gap between the tool's intended purpose and their physical experience, as depicted in the Table 5.7. The Gap rating result for the Information Dimension was 5.6, this gap rating translates as an overall medium design-reality gap rating and shows that there is some degree of difference between the expectation in other words information quality, information flows, informal information and other stakeholders of information, and it's intended use of the tool and the reality delivered.

5.3.3   Process Dimension Gap Analysis

Table 5.8: Process Dimension Gap Analysis

Dimension	Survey Question	Gap Rating Result
Process	**Process Dimension** When selecting your gap rating for the Process Dimension following should be considered Decisions, Actions/Transactions, Informal Processes and processes involving other stakeholders: public sector clients, suppliers, or other collaborators	**5.95**
	* 3. When using Oracle Business Intelligence, the decision making process is changed. What gap exists between the capability of the Oracle Business Intelligence tool and current process of decision making? 0 - No Difference 5 - Some degree of difference 10 - Radical difference	

Participants were asked to consider aspects of Process in relation to the BI Tool and whether they had experienced a gap between what the tool's intended purpose and their physical experience, as depicted in the above pictures. The Gap rating result for process dimension was 5.95/6, this gap rating translates as an overall medium to large design-reality gap rating and shows that there is quite a big degree of difference between the expectation of the tool i.e. decisions, actions/transactions, informal processes and other stakeholders, and also considering the capabilities of the tool in the decision making process, and how all these factors compare to the reality delivered.

5.3.4 Technology Dimension Gap Analysis

Table 5.9: Technology Dimension Gap Analysis

Dimension	Survey Question	Gap Rating Result
Technology	**Technology Dimension** When selecting your gap rating for the Technology dimension the following should be considered: functionality, accessibility and utilisation	**6.1**

Participants were asked to consider aspects of Technology in relation to the BI tool and whether they had experienced a gap between what the tool's intended purpose and their physical experience, as depicted in the above picture. The Gap rating result for the technology dimension was 6.1, this gap rating translates as an overall large to medium design-reality gap rating and shows that there is quite a big degree of difference between the what the expectation i.e. functionality, accessibility and utilisation of the technology, and the reality delivered.

5.3.5   Objectives and Values Dimension Gap Analysis

Table 5.10: Objectives and Values Dimension Gap Analysis

Dimension	Survey Question	Gap Rating Result
Objectives and Values	**Objectives and Values Dimension** When selecting your gap rating for the Objectives and Values dimension, the goals or strategies and organisational culture should be considered	**5.95**
	* 6. Oracle Business Intelligence is designed to support objectives and values of an organisation. Select a gap rating between the intended support from Oracle BI and the actual support provided by the tool 0 - No difference 5 - Some degree of difference 10 - Radical difference	

Participants were asked to consider aspects of Objectives and Values in relation to the BI Tool and whether they had experienced a gap between the technology's intended purpose and their physical experience, as depicted in the above picture. The Gap rating result for the Objectives and Values dimension was 5.95/6, this gap rating translates as an overall large to medium design-reality gap rating and shows that there is quite a big degree of difference between the expectation i.e. Organisation goals or strategies and culture and whether it's supported by the technology, and the reality delivered.

5.3.6   Staffing and Skills Dimension Gap Analysis

Table 5.11: Staffing and Skills Dimension Gap Analysis

Dimension	Survey Question	Gap Rating Result
Staffing and Skills	Staffing and Skills Dimension When selecting your gap rating for the Staffing and Skills Dimension, the following should be considered: Technical Skills, Management Skills, Operational Skills and interpersonal skills	**6.45**
	* 8. All users intended to use the system should receive training. Select a gap rating between intended training and actual training received 0 - No Difference 5 - Some degree of difference 10 - Radical difference	

Participants were asked to consider aspects of Staffing and Skills in relation to the BI Tool and whether they had experienced a gap between what the tool's intended purpose and their physical experience, as depicted in the above picture. The Gap rating result was 6.45, this gap rating translates as an overall large to medium design-reality gap rating and shows that there is quite a big degree of difference between the expectation i.e. Skills: Technical, Operational and Interpersonal and training for intended users of the tool, and the reality delivered.

5.3.7   Management and Systems Structure Dimension Gap Analysis

Table 5.12: Management and Systems Structures Dimension Gap Analysis

Dimension	Survey Question	Gap Rating Result
Management and Systems Structure	**Management and Systems structures dimension** When selecting your gap rating for the Management and Systems structures dimension, the following should be considered: Management Systems, Management Structures and Informal Systems & Structures	**5.8**
	* 9. Oracle Business Intelligence is intended to support existing directorate and structures. Select a gap rating that between intended support and existing support that the software provides 0 - No difference 5 - Some degree of difference 10 - Radical difference	

Participants were asked to consider aspects of Management and Systems in relation to the BI Tool and whether they had experienced a gap between the tool's intended purpose and their physical experience, as depicted in the above picture. The Gap rating for the Management and System structures result was 5.8/6, this gap rating translates as an overall large to medium design-reality gap rating and shows that there is quite a big degree of difference between the expectation of i.e. Management Systems, management structures and informal systems and structures and whether existing directorates and structures are supported, and it's intended use of the tool, and the reality delivered.
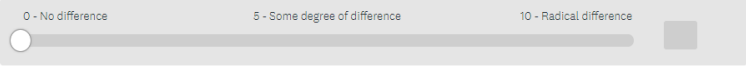
5.3.8 Other Resources Dimension Gap Analysis

Table 5.13: Other Resources Dimension Gap Analysis

Dimension	Survey Question	Gap Rating Result
Other Resources	Other resources Dimension When selecting your gap rating for the Other-resources dimension like time and money, the following should be considered, Initial Investment: Capital, Ongoing Expenditure: Recurrent funds and Time: person-months/elapsed time	**6**

Participants were asked to consider aspects of Other resources in relation to the BI Tool and whether they had experienced a gap between the tool's intended purpose and their physical experience, as depicted in the above picture. The Gap rating result was 6 for the Other Resources dimension, this gap rating translates as an overall large to medium design-reality gap rating and shows that there is a big difference between the expectation i.e. initial investment, ongoing expenditure, recurrent funds and time, and it's intended use of the tool and the reality delivered.

5.3.9 Dimension Gap Analysis Overview

The table below shows the gap rating given by the individual participants, per dimension and the average rating calculated

Table 5.14: Dimension Gap Analysis Overview

	Information Dimension	Process Dimension		Technology Dimension	Objectives and Values Dimension		Staffing and Skills Dimension	Management Systems and Structures		Other Resources
Participant 1	5	8	8	5	8	5	7	1	1	8
Participant 2	7	7	7	8	7	7	5	5	7	6
Participant 3	5	8	8	7	6	3	7	8	3	5
Participant 4	5	5	5	6	6	5	7	8	5	6
Participant 5	2	2	6	1	5	5	8	8	5	5
Participant 6	7	5	8	6	7	4	8	7	6	5
Participant 7	10	10	8	10	10	10	7	10	10	8
Participant 8	5	2	1	7	7	2	5	8	8	7
Participant 9	6	5	3	1	1	7	1	1	4	1
Participant 10	4	5	8	10	5	9	9	9	9	9
	56	57	62	61	62	57	64	65	58	60
		5.7	6.2		6.2	5.7	6.4	6.5		
Average Gap rating per Dimension	5.6	5.95		6.1	5.95		6.45	5.8		6
Overall Gap Rating	41.85									

With reference to the Dimension Gap Analysis Overview depicted as Table 5.14. The overall gap rating was 41.85 for the Design-Reality Gap analysis. According to the Overall Gap Rating table depicted in table 5.15, developed by Heeks (2008) this is a large gap rating and, in this case, indicates that the implementation of the Business Intelligence tool was potentially a partial or even a total failure.

Table 5.15: Heeks' Overall Gap Rating Table

Overall Rating	Likely Outcome
57 - 70	Your e-government project will almost certainly fail unless action is taken to close design-reality gaps.
43 - 56	Your e-government project may well fail unless action is taken to close design-reality gaps.
29 – 42	Your e-government might fail totally or might well be a partial failure unless action is taken to close design-reality gaps.
15 – 28	Your e-government project might be a partial failure unless action is taken to close design-reality gaps.
0 - 14	Your e-government project may well succeed.

5.4   Chapter Summary

In this chapter, the researcher presents the analysis of the interview participants responses and explains the findings by using Thematic Analysis. Each theme had a corresponding status. In summary dominant status per theme showed that the BI technology was not being utilised, there is a willingness to change processes in order to utilise the BI technology, the Bi technology is viewed as a process enhancer, there is no awareness of training available for staff on the BI technology and in the additional comments participants stated that there was an overall lack of communication and leadership in the organisation when it comes to the BI technology

A Descriptive Analysis was done to show the gap for each dimension tested, as derived from the survey conducted. The gap ratings for the dimensions Technology, Process, Objectives and Values, Staffing and Skills, Management and Systems Structures and Other dimensions ranged from 5.6 to 6.45. This means that gap results show an overall medium design-reality

to an overall large to medium gap rating for the dimensions tested. The overall gap rating was 41.85 which is seen as being a large overall gap rating.

The next chapter, Chapter 6 presents Recommendation and Conclusions made by the researcher.

CHAPTER SIX: DISCUSSION, RECOMMENDATIONS AND CONCLUSION

6.1   Introduction

This chapter concludes the research study by providing a recommendation to the findings of the previous chapter in section 6.2. Recommendation has been made in a way that suggests how the gap rating for each dimension can be narrowed.

 In conclusion, the research questions are addressed in section 6.3. The Research questions are answered by linking them to the findings.

6.2 Recommendations: Barriers to BI adoption and use

The Gap Analysis resulted in gap ratings ranging from 5.6 - 6.45 this indicates a medium to large gap rating for all Dimensions tested. This result shows that problems exists. It does not however deem complete failure for the implementation of the Business Intelligence tool. In the table below, the researcher addresses the gaps by proposing risk mitigation on how to narrow the gap and possibly redeem the adoption of this new technology in the organisation.

Table 6.1: Narrowing the Gap

Dimension	Gap rating	Narrowing the Gap
Staffing and Skills	6.45	The organisation needs to concentrate on providing training focused sessions The training should closely match the skills of the staff The trainers should be experienced in the Business Intelligence tool and must be knowledgeable about organisation and what is important for the organisation.
Technology	6.1	A focus on awareness of the new technology needs to be achieved The intended users need to be given access to use the tool Leadership in utilisation is necessary. The utilisation of the tool must be driven from management down to the rest of the staff
Other Resources	6	Focusing on narrowing the gaps of the other dimensions will directly impact the spend already made and going forward because the organisation will get a better return on investment
Process	5.95	Time is needed to be spent on aligning the processes to the Business Intelligence tool Informal processes must be included. Inclusion will ensure that no processes are missed or overlooked Decision making should be a top-down approach and there should be leadership Other stakeholders must always be considered because they are part of the processes
Objectives and Values	5.95	Identifying the organisation goals and culture and then align them to the Business Intelligence capabilities

Management Systems and Structures	5.8	Understanding the dependencies departments has on each is paramount in narrowing this gap Ideas or requirements from each department should be addressed incrementally
Information	5.6	Information should made accessible to the users and other stakeholders Information must be relevant to the user accessing the information Information must be relevant for the time frame the user needs to view the information in

No barriers were found in the Process, Objectives and Values, Management Systems and Structures Themes. Barriers were exposed in the Technology, Staffing and Skills and Additional comments themes. The researcher addresses the barriers by giving recommendation on how to overcome them in the table below:

Table 6.2: Barriers and Recommendations

Theme	Barrier	Recommendation
Technology	• No Utilisation of BI • Organisation Operates in Silos • Organisation is unaware of BI • Organisation is not educated on BI • No communication about BI • Acceptance is slow	In order to increase the utilisation of BI the needs a cultural change. The barriers exposed for the technology theme shows that the organisation needs to create a culture of sharing, sharing new technology should be a key focus. The result of sharing is educating. Sharing is part of communicating. When communication lines are open, acceptance of a new technology becomes easier.
Staffing and Skills	• Staff is not trained • No training provided to staff • No communication about training • No awareness of training • No awareness of who in the organisation is responsible for training • No focus on Training	For acceptance of a new technology the key focus should be on training. Training should be planned for. Training should be accessible. Communication lines must be made available, the staff needs to know who to talk to when training is needed. Staff needs to be aware of what is available in order to use the technology. Training provides this awareness.
Additional	• Lack of openness and transparency • No awareness created • Lack of leadership • Decision making process takes too long • Business does not take ownership of BI	Addressing the general barriers. A cultural shift is critical in order to overcome the barriers. Leadership in communication is needed. Leaders must be accountable aa well as approachable, in order to create an environment of transparency.

6.3 Conclusion

The purpose of this research was to discover the barriers to adopt business intelligence by a government department in the Western Cape. The researcher embarked on a journey of identifying the barriers, by answering the research question*: Why is the government institution in this study slow in adopting Business Intelligence as a decision-making tool?* The setting chosen to assist in answering the research questions, was a government department in the Western Cape, that had implemented the Business Intelligence technology.

In answering the question: *What does the government institution in this study regard the benefit of Business Intelligence?*

The results of the research show that the department agrees that Business Intelligence could be a process enhancer. This dominant status for process shows that the department knew what the benefits of Business Intelligence are. Participants also agreed that Business Intelligence supports the objectives and values of the organisation. Further consensus was given on Business Intelligence supporting the existing directorate and systems.

In answering the question: *What methods for decision-making does the government institution in this study prefer?*

The research found that there was a strong willingness to use Business Intelligence technology, and that there was a low resistance to change given that participants felt that Business Intelligence could certainly enhance the organisation's processes. Despite the willingness to change and utilise Business Intelligence, the agreement by participants regarding all the other supporting functionality that Business Intelligence has to offer, the utilisation of the technology was non-existent. The reason for low utilisation was discovered by answering the final research question.

The final research question: *What are the barriers to BI adoption within the government institution under this study?*

The barriers were exposed as being: no communication, lack of leadership, no awareness created about the availability of the technology, no training provided, no awareness of a training platform and no education about the new technology was provided.

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APPENDICES

Appendix A: Consent to perform research at the case study

Cape Peninsula
University of Technology

Introductory letter for the collection of research data

Rushaana Fakier is registered for the M Tech (IT) degree at CPUT (200691260). The thesis is titled Business Intelligence as a tool for strategic decision making in the administration of Public Institutions: Case of a government department in South Africa, and aims to investigate how government in developing countries use Business Intelligence for strategic decision making, using an empirical case study of a government department in South Africa. The supervisor for this research is Prof Ephias Ruhode.

In order to meet the requirements of the university's Higher Degrees Committee (HDC) the student must get consent to collect data from organisations which they have identified as potential sources of data. In this case the student will use interviews and/or questionnaires to gather data.

If you agree to this, you are requested to complete the attached form (an electronic version will be made available to you if you so desire) and print it on your organisation's letterhead.

For further clarification on this matter please contact either the supervisor(s) identified above, or the Faculty Research Ethics Committee secretary (Ms V Naidoo) at 021 469 1012 or naidoove@cput.ac.za.

Yours sincerely

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Reference: 15/12/1/3/7

Cape Peninsula University of Technology

Dear Sir/Madam,

COLLECTION OF RESEARCH DATA: RUSHAANA FAKIER

I, Anthonie Janse Van Rensburg, in my capacity as **Acting Director – Fleet Services** at **GOVERNMENT MOTOR TRANSPORT,** give consent in principle to allow Rushaana Fakier, a student at the Cape Peninsula University of Technology, to collect data in this company as part of her M Tech (IT) research. The student has explained to me the nature of his/her research and the nature of the data to be collected.

This consent in no way commits any individual staff member to participate in the research, and it is expected that the student will get explicit consent from any participants. I reserve the right to withdraw this permission at some future time.

In addition, the company's name may or may not be used as indicated below. (Tick as appropriate)

	Thesis	Conference paper	Journal article	Research poster
Yes				
No	√			

Anthonie Janse van Rensburg
Acting Director: Fleet Services
Government Motor Transport

Date: 12 September 2017

1 | P a g e

34 Roeland Street, Cape Town, 8001/Private Bag X9014, Cape Town, 8000
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The Afrikaans or Xhosa version of this document is available on request.

Appendix B: Interview Structure and Interview questions

Design-Reality gap analysis is a method used to discover, whether a gap exists between the current realities "how things are" after the system was implemented and what was expected after the system was implementation. It is therefore a comparison between the reality and the expectation.

The following elements/dimensions that are related to the system, directly or indirectly was assessed:

1. Information
2. Technology
3. Process
4. Objectives and values
5. Staffing and Skills
6. Management Systems and Structures
7. Other resources: Time and Money
8. Outside world

This is how the instrument was administered:

1. Face to face interviews
2. With an audio recorder

For each and/or some of the above analyse the following:

For the specific dimension what is the present feeling towards the dimension? What is the actual situation when looking at this dimension?

What are requirements of the dimension within the design of BI?

How would you rate the size of the gap between the reality "how things are" and what was designed? The scale is from 0 to 10.

a)   0 rating would indicate 'no change between the design proposal and current reality';

b)   5 rating would indicate 'some degree of change between the design proposal and current reality';

c)   10 rating would indicate 'complete and radical change between the design proposal and current reality'

Explain rating with an example, taking the first dimension - information - 0 would indicate that the information used in BI application was the same as the information currently really being used in the organisation. 5 would indicate that the information used in BI application was

somewhat different from the information currently really being used. 10 would indicate that the information used in the BI application was completely and radically different from the information currently really being used.

Interview Questions

ii. Technology dimension

a) Is there a willingness to take on the technology that Oracle Business Intelligence Tool?
b) Does your team utilise the Oracle Business Intelligence Tool?
c) If yes, how much of the functionality do you and your team use?
   If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?
d) What are the reasons the Oracle Business Intelligence tool is not being utilised 100%?

iii. Process dimension

a) How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?
b) Explain reasons why there may be a resistance change the processes?
c) Does the Oracle Business Intelligence tool enhance your and your team's processes?

iv. Objectives and Values dimension

a) Does the Oracle Business Intelligence tool support the objectives and values of government department you work in?
b) If 'Oracle Business Intelligence tools does support the objectives of government department you work in ', please explain how the objectives and values of government department you work in is supported.
c) If 'Oracle Business Intelligence tools do not support the objectives of government department you work in ', please explain why the objectives and values of government department you work in is not supported.

v. Staffing and Skills dimension

a) Has your team been trained to use the Oracle Business Intelligence Tool?
b) Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?

c) Do you know why your team may not have been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?

vi. Management Systems and Structures dimension

a) Does the Oracle Business Intelligence Tool support existing directorate systems and structures?

b) If not, why does OBI tool not support existing directorate systems and structures?

Dimension	Interview questions			
	Present Feelings	**Requirements**	**Gap Rating**	**Comments on Rating**
Information			✔	✔
Technology	✔	✔	✔	✔
Process	✔	✔	✔	✔
Objectives and values	✔	✔	✔	✔
Staffing and Skills	✔	✔	✔	✔
Management Systems and structures	✔	✔	✔	✔
Other Resources: Time, Money, etc.			✔	✔
Outside World			✔	✔

Qualitative Questions
Quantitative Questions

Table shows the questions that was asked pertaining to each dimension. It also indicates what type of question it is, qualitative or quantitative

Appendix B: Survey Layout

Tool to capture the Gap Ratings: Survey created with Survey Monkey, free cloud-based online development software.

The below pictures depict the survey that the participants completed:

Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions

Information Dimension

When selecting your gap rating for the Information dimension the following should be considered: Information Quantity, Information Flows, Informal Information and Other Stakeholders: public sector clients, suppliers, or other collaborators

⚠ This question requires an answer

* 1. Select your gap rating for the Information Dimension
The greater the difference between design and reality the higher the rating, the lesser the difference between design and reality the lower the rating

0 - No difference	5 - Some degree of difference	10 - Radical difference

Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions

Process Dimension

When selecting your gap rating for the Process Dimension following should be considered Decisions, Actions/Transactions, Informal Processes and
processes involving other stakeholders: public sector clients, suppliers, or other collaborators

* 2. Select your gap rating for the Process Dimension
The greater the difference between design and reality the higher the rating, the lesser the difference between design and reality the lower the rating

0 - No difference	5 - Some degree of difference	10 - Radical difference	

* 3. When using Oracle Business Intelligence, the decision making process is changed. What gap exists between the capability of the Oracle Business Intelligence tool and current process of decision making?

0 - No Difference	5 - Some degree of difference	10 - Radical difference	

PREV   NEXT

92

Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions

Technology Dimension

When selecting your gap rating for the Technology dimension the following should be considered: functionality, accessibility and utilisation

* 4. Select your gap rating for the Technology Dimension.
The greater the difference between design and reality the higher the rating, the lesser the difference between design and reality the lower the rating

0 - No difference	5 - Some degree of difference	10 - Radical difference

PREV   NEXT

Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions

Objectives and Values Dimension

When selecting your gap rating for the Objectives and Values dimension, the goals or strategies and organisational culture should be considered

* 5. Please select your gap rating for the Objectives and values dimension.
The greater the difference between design and reality the higher the rating, the lesser the difference between design and reality the lower the rating

0 - No difference	5 - Some degree of difference	10 - Radical difference

* 6. Oracle Business Intelligence is designed to support objectives and values of an organisation. Select a gap rating between the intended support from Oracle BI and the actual support provided by the tool

0 - No difference	5 - Some degree of difference	10 - Radical difference

PREV   NEXT

Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions

Staffing and Skills Dimension

When selecting your gap rating for the Staffing and Skills Dimension, the following should be considered: Technical Skills, Management Skills, Operational Skills and interpersonal skills

* 7. Select your gap rating for the Staffing and Skills dimension.
The greater the difference between design and reality the higher the rating, the lesser the difference between design and reality the lower the rating

0 - No difference	5 - Some degree of difference	10 - Radical difference

* 8. All users intended to use the system should receive training. Select a gap rating between intended training and actual training received

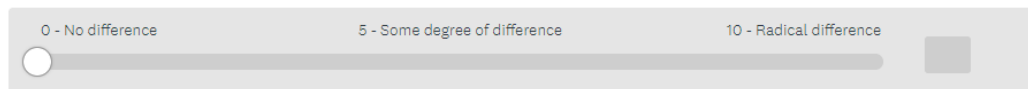| 0 - No Difference	5 - Some degree of difference	10 - Radical difference

PREV   NEXT

95
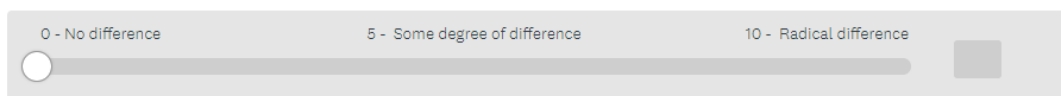
Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions

Management and Systems structures dimension

When selecting your gap rating for the Management and Systems structures dimension, the following should be considered: Management Systems, Management Structures and Informal Systems & Structures

* 9. Oracle Business Intelligence is intended to support existing directorate and structures. Select a gap rating that between intended support and existing support that the software provides

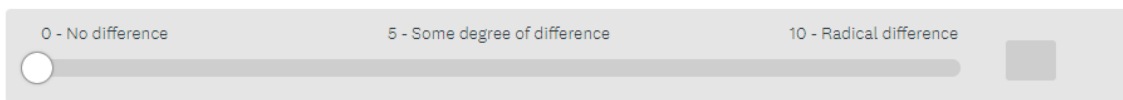| 0 - No difference | 5 - Some degree of difference | 10 - Radical difference | |
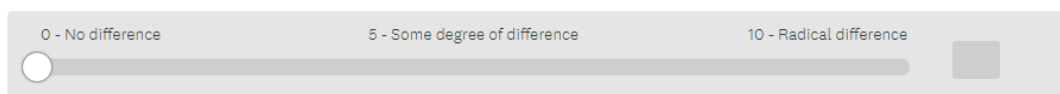
Design-Reality Gap Analysis. This is a Gap Analysis of the Oracle Business Intelligence tool implemented at GMT. The survey analyses the end-users' view on the gap between what was expected (design) and what was implemented (reality) for 7 dimensions
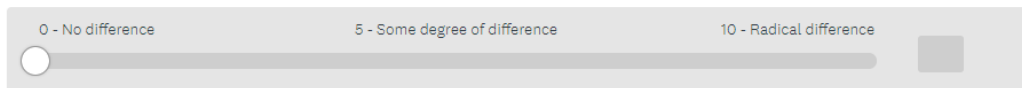
Other resources Dimension

When selecting your gap rating for the Other-resources dimension like time and money, the following should be considered, Initial Investment: Capital, Ongoing Expenditure: Recurrent funds and Time: person-months/elapsed time

* 10. Select your gap rating for the Other Resources dimension.
The greater the difference between design and reality the higher the rating, the lesser the difference between design and reality the lower the rating

| 0 - No difference | 5 - Some degree of difference | 10 - Radical difference | |

ppendix C: Interview Transcripts

Interview Number:	1
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	Yes, of course as it will simplify my task at hand, I am willing to use it
b. Does your team utilise the Oracle Business Intelligence Tool?	Not yet, I was made aware of the tool two weeks ago
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	I was not aware of that tool
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	I did not know about that part and what it enables us to do.
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	Yes of course, anything if we see a more a simplified or easier way of doing things. We are willing, especially to make everything easier and the data more accessible.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	Yes, of course, it is a benefit. Because though that information that is on that BI, oracle is readily available. Currently, like I said, it's, we do it manually. I need to go draw reports. To get the information manually to be able to do my reports for management meetings, but that's how I can just go on that dashboard and just get that information. Cause currently I'm doing the graphs manually do you understand? Where with, that BI dashboard tool, as it already has the graphs and I don't need to you know, go to excel, to create a graph.
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Yes, in a way,
b. If 'Oracle Business Intelligence tools does support the objectives of government department you work in ', please explain how the objectives and values of the government department you work in is supported.	and also guides us in where we can measure our performance in terms of the objectives and goals. So it's an excellent tool to guide us.
c. If 'Oracle Business Intelligence tools do not support the objectives of government department you work in ', please explain why the objectives and values of government department you work in is not supported.	
Staffing and Skills dimension	

a. Has your team been trained to use the Oracle Business Intelligence Tool?	No training. We've been given a like a crash introduction to the tool, not yet a formal training so I've seen the tool what is it can enable us to do, so I am going to need a training to use the tool by myself.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	No Training provided currently I am not sure if there was in the past training but I did request from Deon he needs to train me in this. Because we all are, most of us are new and finance as well. I don't know if there was and if, people receive the training. But yeah, I requested that the new people go for training.
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	
Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	Yeah, I look that tool will support even on a monthly basis, because I have to report on a monthly basis to management example, budget actuals versus or actual expenditure vs budget. So it assist me with that information. So it does support my reporting requirements. Yes. .
b. If not, why does OBI tool not support existing directorate systems and structures?	
Anything extra to add	The BI is there it's just there for us to make use of. SO, we are willing to use it, so we just need to get that training from IT side but we are willing and eager to use it because it's going to simplify our task tremendously

Interview Number:	2
Questions	**Answers**
1) Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	Yes
b. Does your team utilise the Oracle Business Intelligence Tool?	No
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	The team utilise other reports like URL reports, invoice aging. They do make requests for enhancements to the system, but they are still waiting. Their controls are not working. They utilise the Oracle E-business suite (Financial System) to do reporting
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	Not aware of the system. No communication received about the BI. I am fairly new, but the induction training did not include BI
2) Process Dimension	

a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	If NI will increase efficiency and accuracy, then we are definitely willing to change processes. The benefit will be huge
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	Yes, it will enhance processes
3) **Objectives and Values dimension**	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Yes. One of the objectives and values of government department I work in is to pay on time. So, yes BI will definitely assist and support this objective
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of government department you work in is supported.	It will be supported. Currently because errors are picked up too late in the process. BI will assist in speeding up the process between departments and assist in identifying and rectifying errors quicker. E.g. Noticing that banking details of a company is incorrect at the beginning of the process
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of government department you work in is not supported.	
4) **Staffing and Skills dimension**	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	No
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	Yes. It will be provided by office support services eventually
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	
5) Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	Yes, it will .There is a huge requirement for reporting due dates: monthly, quarterly, bi-annually and yearly

b. If not, why does OBI tool not support existing directorate systems and structures?	
Add on	The systems and the controls are in place but if people do not do their work, nothing will change. People don't do their work. The aging report is monitored daily

Interview Number:	3
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	I think it's a little bit difficult to say because I don't think that all the role players has seen it. The technology hasn't been made available to everybody. They don't know exists. So I think if it was more visible, they might have been a bigger adoption.
b. Does your team utilise the Oracle Business Intelligence Tool?	It's not in our mandate to utilize it, but there was opportunities that arose where we were then part of creating BI reports etc. So, we did have some exposure to it, yes
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	Yeah, I think and user adoption is quite low in the organization of new technologies. But, but purely, I think because of lack of skill set to be able to roll out the technologies and perhaps like change management, etc, etc. And also, I think the, the core business is taken care of, but BI etc is seen as value added technologies, and only a few people might have access to it. I think us as Information specialists, we can see, we know the benefit of BI tools even at a lower level, like mid management, and, and perhaps even a little bit lower than that. But I don't think the, the user base we've got here is use to having that type of information and to their disposal, cause, they're more transactional based, rather than analysis based and the BI tools, obviously more useful analysis. And there is a gap in the sense of people, people aren't used to using that type of tools as well. So it's more lower management. Which they might know it exists, but it wasn't part of their SOPs or KPIs or KPAs to say, use this tool to ensure that you like your department perform better. And then it rolls up into mid management then in top management, so I don't think that awareness has been created through the business.
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	We are very willing, obviously, from what I've seen in the BI tool and it's very powerful and it actually gives you a lot of flexibility across all nearly all the modules that we've implemented, definitely. And so, from our perspective, if we start using it we will be able to assess business actually in a more proactive way as well, because we will be seeing what's wrong or not correct or am I supporting business? Yeah, especially on the financial side, we will be able to pick up issues quicker than they would normally so we would be willing to. From our

	perspective, it's not normal for us to be able to use the BI tool because we've got other diagnostic tools, etc. But, yeah, there's no problem with willingness.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	Yes, I definitely think so. Because again, it's easy to get stuck into the detail where if you set up the BI tool to look at the various levels, from a top level, down to mid and lower level data or information. Yeah, Definitely I mean, we can. I haven't seen the part where it links into perhaps, business processes, etc, or workflow perhaps. So if it can link to workflow, then one can quickly see if there's workflows that break etc, or errors or stops whatever. So I'm going to go and have a look at that. And it might also be like a central view or a central stop to get information from. So it will definitely, it can definitely be used to enhance the support function and the processes within that.
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of government department you work in?	Yes, definitely.
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of government department you work in is supported..	The tool definitely has got the capability to do that. And it's again it just depends on the user adoption, if the user adoption is there the tool can be set up to accommodate 99.9% of the operational managerial views from their data.
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of government department you work in is not supported.	
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	We have not been trained but I think the learning curve would not be that big. If the, BI specialist as for a couple of sessions with us, so that we can understand the context of how things fit together. I think it will be quite easy to adopt or to create dashboards, etc. But it's not some of the underlying stuff. But I mean, yes, I mean, and yeah, we haven't been trained, but I don't think it will be a difficult learning curve.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	No they haven't been trained
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	On the on the BI tool, no, they have not and so I think it comes back to the need. And it has been implemented. I think, well, I'll speak on correction to say when it was implemented, that there wasn't training, I'm not sure, on that aspect. But I think that you have the training, they will they will be again, it would be quick user adoption, it's not difficult for them. Once the dashboard has been set up according to the requirements, the training to change the parameters, etc, etc. That's very intuitive, actually. So, it should be quite easy, but they haven't been trained.

Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	Yes, definitely. I think from what I've seen and dealt with, it's powerful enough to deal with various periods, various levels of data. So depending on who needs to look at the data, it will cater for the level that's needed, whether it is top management middle lower, like I've said earlier, so yes, definitely, it can be set up. What I've seen is actually it's quite powerful and operational side and for example, managing accounts payable accounts. Agings, late payments, etc, etc, it can be flagged. And so from operational point of view, it's actually quite powerful. And then for the directors on top management and for their KPIs and KPAs, and it's also if it's period driven and segmented cost centres. So one can definitely use it within the current structures. Yes, whether it's cost centre the driven or whether it's financial period driven, financial year, financial quarters, financial months. Yeah, so definitely it can cater.
b. If not, why does OBI tool not support existing directorate systems and structures?	
Add on	<No Additional Comments>

Interview Number:	4
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	In government department I work in technology, is something that's a key part of our process on how we run the business. Because there is quite a wide demographic of younger staff members towards the more legacy staff members, we've all adopted the approach that technology makes work a lot easier. So rather work smarter, not necessarily harder, because we're part of the process in developing the system. You'll get buy-in from older colleagues or like we refer to as the family to design the applications that we use in our everyday work. So that's the value that you came from that buy-in making even more a part of the process. You get a point The skills and excitement to constantly improve on the system. Okay, so there is a willingness Definitely, there is a willingness for many, many, many years because we've started with our first system design way back in 1996. So it's been part of evolution of the government department I work in to constantly improve on the systems and because we use the system every day, we are the best, how can I say, candidates to review and improve on the system continuously.
b. Does your team utilise the Oracle Business Intelligence Tool?	We do use the do. It's been more intense in the current applications that we use. So what we normally do is we do have BI. But with the new development of the traffic violations module, the BI focus on those reports was a lot stronger. And we could see the potential that we get from that. So do we help us with our planning in terms of budgeting, expenses, statistics that we do need as management to know about, and it helps us with the line function operations. Where we can actually compile our own reports, you can export it into graphs, and it gives you

	a lot more artistic freedom to use the system than to receive old fashioned PDF report where you don't have actually any insight not manipulation but to make it more workable for you.
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	It's quite a new environment to us. So dominantly from a management side, we had more exposure to it, but not all the levels in our unit. Because we now more into that arena, we're more focused on that. We are actually bringing more people on board. And we're learning as we go along. So there's still room to expand on it quite a lot. But what we have learned from it, it's definitely going to add value. Now we just need to share it with everybody so that everybody's on the same platform, the same page.
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	We're quite willing to do that. Because you can definitely see between the operational information that we have in the system, say fleetman, as well as the GOFIN and information if you can actually interface that information to one pool of data to get more, a lot more value from it. So there's obviously definitely value in it to look at different ways of reporting to say not just focus on one environment, but bring business and financial into one space and get the combined report from that.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	And I think that is actually where the BI tool is actually bringing the two systems closer together. And you getting more information without having to do data analysis. Because otherwise you would have had to look at a financial data separately and then you look at the business data and then you try and marry the two yourself. And now the system actually does it for you. And you can change it in the way you set up the information because you can customize it according to your own requirements. That's the value, true value for us. So we are quite eager to change it always improve on it. Add more data and see what will be the result to make it even smarter.
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Definitely, Yes
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of the government department you work in is supported.	Okay, one for us the value proposition is very important for us. So if you run a business, and because we a government institution, we don't have profit. So, we see our add-on that we do with the services that we render in is the value of the service we render to the clients. So if you know exactly what income you're generating, versus the expenditure that you're spending on it, and you have a very good correlation between the two, it actually helps you to run the business to see where you may be spending more money, or where you can make certain savings. So the financial information having that readily available. That's the very important part to run the business and be able to share that with your client. So that actually relieves the pressure on business to communicate to the client because you can share the system with your client on a scaled down version, to keep them informed of their

	expenditure, their utilization. And where they can get economics of scale. From the service being rendered by the government department I work in
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of the government department you work in is not supported.	
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	Yes, we've definitely been trained. And as we mentioned, they're quite young. So obviously, technology is something that quite excited about, I think, UPK that User Productivity Kit up guide training that we've started to include, will actually make it even easier to learn new aspects or new features of the system. Because I would say the old classroom training is sort of more your older type of doing training. And your more online training is actually if I'm busy using a certain function, I would like to know what's the next step How can I do it? The system actually guides you through it. And I think the assessment part, we can even sort of do an online test to test your skills. And to sort of get a certificate that you actually achieved a certain percentage in your level of skill, say 80% out of hundred, actually motivates people because you sort of create healthy competition to say, but I got 100% for that application, and then somebody else will say that, I also do it and I'm also going to get on and I'm also going to get 100%. And because you then very focused on the quality of the daughter and accountability of the data that you deal with, you actually improve the quality of the data in the system. And then you get even better information from the system, because the quality is in the input. Like you put in you're going to get out of the system. And that for us is a healthy way of taking it to the next level.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	Definitely. Yeah, because that is how you get people interested in it is to actually do a show and tell. Show them new enhancements and make them part of the UI to the user acceptance testing. And then when we go into production, train the whole team, and especially when you on board new people, because now we in this evolution of restructuring the government department I work in, and a lot of new people are joining the government department I work in. And that means there's going to be a lot of training. Do you have an induction program? Yeah, we definitely have induction program. So there are different phases to it to say, when you actually start the government department I work in. Try and give you a sense of where you are in the organisation, what's happening around you, what is expected of you in terms of the system. And obviously to tell them that it's heavily driven by technology, because we are not only based in in one office, we have the Cape Town office we have the Maitland office, we started with the George hub as well the regional hub there. Yes. So we definitely work

	for apart from one another. And the technology actually brings us all together so that when I do something here, the next step is real time to the next person down the line that needs to execute and, therefore, training is very important. And that's why we could continuously train people on it, add new features to the system, listen to their feedback, make it even more dynamic for them to use it.
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	
Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	Yes, definitely does help us, in terms of some of the reports they already starting to actually incorporate graphs into it. Because sometimes because of the data sets, you can't always see the data. But if you can sort of transform that data into graphs, it will actually show you whether your performance is acceptable, whether you low and your performance. May be your expenditure is showing some sort of a trend that it's increasing, or it's straight-line or it's decreasing. Because we can schedule these reports to run at different times. And you can sort of use different devices to obtain that information. It's becoming part of your everyday type of information. So for example, in our environment, we need to replace a certain amount of vehicles on an annual basis. Because we do it in a phased process, we get notifications daily to tell us how many vehicles we should start verifying, that they need to be replaced. And that actually helps us to have continuity in the work that you procure. And all the steps that will follow after that will help you through that process. So the notifications part is quite important. Having structured reports being delivered to you without having to actually draw the report yourself. It's delivered via the system. It's a very handy tool. Secondly, As we move along with workflow, workflow actually helps you to make sure that certain activities will happen, because, as humans, we might forget about something. But because it's in your workflow, it will tell you that you need to review this specific report, you need to maybe authorize certain expenditure, you maybe need to look at having certain vehicles fitted or withdrawn from the process. So it's sort of your office assistant to guide you on certain activities that you need to do. And because we know even in SMS notifications, you don't even need to be in front of your laptop or your PC. You can even get it on your mobile phone. To say that there is something that you need to either report on or you need to evaluate a certain report. And I think that's also very nice add on to the current system.
b. If not, why does OBI tool not support existing directorate systems and structures?	
Add on	<No Additional Comments>

Interview Number:	**5**

Questions	Answers
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	I think it depends on different levels within the business. I mean, we work from the user base all the way up to management, interaction and such. So I do get the idea high up and all this new things that we see around us this new breath of fresh air since last September, October. there's a thinking of strategic level to actually incorporate all sorts of technologies. So there's an openness about that. But I think the lower you go down the list the, the acceptance or the maybe the eagerness to, to change, I think there's a big resistance to change still in the environment that we work in. which you probably don't see let's say in the corporate world out there, I think people are pretty concerned about their jobs and change is not necessarily positive. In fact, I think they are concerned about change, how that may affect their little situation, you know, where they are niched in. So I, I don't get the feeling that that's sort of lower level definitely not higher up. I think there's a there's acceptance and obviously with the new staff that came here since late last year, some New DDS and some new state accountants, we get the feeling they are but of new blood, if I can call it that, that is probably a lot more open to technology and anything around that. So, in my mind, it's maybe opportune time now to maybe expose the business again and maybe suggest that kind of thing for them to review that and let's, you know, see what we can do
b. Does your team utilise the Oracle Business Intelligence Tool?	We've done demos to business end of last year we sat together and we set up a little demo. And Deon rolled that out to the Deputy Directors, the three Deputy Directors that we work with, and they were very excited and keen from what they saw. So Oracle has that built in the EBusiness Suite as a whole, so daily business intelligence module or sub module I don't know exactly what level of the modules that is. But definitely what they saw. They look very interested. But obviously that I am but I think why but the process here at the moment, we still need to get that, but definitely that it was well received. Let's put it that way.
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	I would say nothing. None So there's, as far as I know, this was shown a few years ago and brought up every now and then and I think hopefully now, but again, you know, it's not already November and we're already in February. So you know, things take a bit longer to come to use. So let's hope we can at least make it stick as part of the new process post new year when a new financial year kicks off in April
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	I think adoption is slow in principle you have anything new? If I think I mean from what I've heard, not my own experience really. But getting enhancements upgrades whatever done and with the sort of the challenges they are with communication between the service team and the business. Things have not gone quickly, I'm used to a lot quicker adoption, where I come from a corporate environments
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	I think so I think so if you, as I say is if you look at the higher levels of management, down to let's say Deputy Director level even managerial but at least Deputy Director level, I think there's a willingness to utilize

	it. And that's why I think it's important to try and make it available as soon as possible because I think it's one of those things if you have it. The more you use it, the more you'll see the advantages of it. It's one of those situations of having it, I mean it's like having a mobile phones These days, I mean, if you have a mobile phone or a smartphone, you probably when you still have your little button, Nokia 33 whatever you wouldn't have envisaged is to be a camera and a social tool and then navigation, aid and fax machine and scanner, you know, whatever a mobile phone can do these days. So once you have it, you tend to change it to your needs. And then it becomes this multifaceted tool that you carry in your pocket. So I think once and this is the technology, technology in general is like that, the moment you start utilizing it, you actually see more opportunities to actually apply it. And it can help you in that sense in those solutions. And that will, in the end, help you change the way you do things Exactly because that drives that drives at the moment. See, you can approve the invoice on your phone instead of having to go to your computer in your office to log in and approve it. If you can get the relevant information on your phone, you can do it there. There's no reason why you shouldn't do it there.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	Yes, I think also from my team's perspective, as well as the business perspective, that can definitely enhance the way they do business and be more alert to have more forward looking of what's coming down the line. That's the that's the beauty of BI and gives you that sort of one pager view of green zones versus red zones and you can quickly drill into the red zones. I mean, if everything is green, everybody's been paid all the receipts of taken place, all the invoices have been processed, everything is green, it means all well, but if something becomes red suppliers not being paid in time. Now you can drill in what was the problem was that? What's the story? Let's dig into that a bit, too. And I think that's the beauty of BI. It's that, that sort of processes alerting you to issues and the nice thing about is you can drill in you then drill into the bit that's worrying. That way you don't have to wait through a lot of reporting to get to the problem situation that gives you that heads up, here is the issue let's go look for what problem is, that means you will be more effective. I mean, you can you can drill down and quickly find where the issue is.
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Yes, I would definitely say so
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of the government department you work in is supported.	The one thing that I'm not (not sure what this word is that he uses) with is obviously they'll GRAP standard and the details. So I would think it relates to more similar to the GAAP, which is the accounting practice, it's run in South Africa. So I would think this is similar. But one would expect more sort of detail in there in terms of how new things these are done more sort of process driven. And how the accounting is done in a government environment. So I'm not I'm not (not sure what this word is

	that he uses) with what exactly is in there. And but I mean, that's not my job. This is for the state accountants to take care of, and the financial director to know all about that. But I mean, just in principle of sort of the way that the big ERP systems are designed, it's pretty much best practice as implemented all over the world. So one would expect that to be in line with at least what the requirements of something like a GRAP standard would be. So I would expect it Yes.
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of the government department you work in is not supported.	
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	I don't know the reason for the team, for myself have had Oracle training quite a long time ago. But that's the beauty of Oracle. I mean, there's a wealth of information available on the My Oracle Support Portal. So whatever you need to get in touch with these manuals or the knowledge base articles, there's group supporting that specific module. So there's a wealth of information that you can get a hold of the moment you get stuck into something. And then there's lots of places where you can post questions and people will help you from the user base from the Oracle themselves from the Oracle support environment from the Oracle development environment. So this, I mean, this isn't, there's no lack of availability of material to get study. So I mean, most of us, I think, in the in the Oracle world, if I can talk for the eBusiness suite, people tend to sort of delve into whatever you're busy with at the time of the crime, and then study it yourself. I mean, that's what you do when you go to varsity. I mean, in principle, how was it? When once you got to varsity, you've left school now, it's now not the teachers problem for you to get this. I mean, basically, the issue is a textbook at the beginning of the year. And so by the end of the year, you need to know everything that's in this book. And they just don't care how you get into it. I mean, they give you a bit of a framework and there's a possibility to maybe ask questions and whatever, they put you through a high level program to cover the work, in principle, you need to get stuck into that book and make it your own. And I think the Oracle world is very much the same. I mean, the as I say, everything from a technical reference manual to a user guide to a training material, it's all there. That's all available once you're licensed. If you pay your licenses, you have access to all this information. So via the government department I work in, we have access to that we've got a CSI number and off we go. So we can really go utilize all the products that the government department I work in is paying for we can get access to no problem.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	I'm not aware of that specifically, and I doubt if it's been done at this point, from what I'm aware, the supply chain procurement process. pretty well documented with UPK, which is interactive to where you get trained. And I also another gets the basic one day or two-day module, which is presented by the training team here. Yeah, the training team

	on basic navigation and so on. So, I wouldn't think that BI, specifically, is trained, as far as I'm aware of, I'm not aware of any training like that. NO training available
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	I would think that BI at this point is probably seen as a management top management tool to a large extent, which is probably not quite true. I mean, think I mean, you can implement it all the way down. To people processing invoices if they have a BI page, showing them how many invoices they've processed today, that can be the either measuring KPIs or as a motivation or whatever. So no I think it's a question of adoption, getting it implemented, and then showing what it can do.
Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	Not a little doubt, I'm confident that it will definitely make a big difference. And especially again, as I say, showing you where the issues are in time, because that's it, that's what this is all about is having the right information at your fingertips. And that information being current. It's no sense in running a report and it's a month old, or the data stale, or whatever the case may be. So and I think that's the beauty of BI is that you can get like daily refreshes or even more than more often than daily. So you can have the latest picture of what's going on, as if you get into the office in the morning at six o'clock or seven o'clock, and then you can open up your dashboard. And you can see what the state of the game was in the business yesterday, when you've got the fresh look of exactly what's going at that moment. So, definitely for all of those reporting. This I'm confident that BI can cover that for sure.
b. If not, why does OBI tool not support existing directorate systems and structures?	
Add On	I'm concerned that we struggled so long to actually get this off the ground. And I'm very, I mean, we were very positive about changes that we saw take place end of last year, so that was a breath of fresh air. And it's lost a bit of momentum, I think, which is a pity. But still, having said that, if I look at the situation, we are now versus where we were six months ago, nine months ago. It's like day and night. I mean, we're in a much better space now, in terms of openness and terms of interaction with business, especially via the IT stream. We've had a pretty good relationship from our team, I think with the finance, finance side of the business, which is good. But I think that's better now. I think this is there's more people, there's more state accountants, I think they are getting more confident with their roles. And I think they also sort of finding the way now. So, no all in all, I think it's, it's a lot better. But still, to me, I'm still concerned about the time it takes for decision making, and to get decisions made and buttoning down processes and sticking to this process. So in my mind, communication is key and you need strong leadership and management to take that forward. And then obviously buttoning down your processes. I mean, we all understand that once the process is documented, it's not cast in stone. That's that should be a live document, it should change over time, one would expect that by at least you've got something to work with at the

	moment, I'm still worried about those processes that needs to be documented and put in place. So especially from our perspective, the ICT side of things interacting with business, because there's a lot of Oracle modules that the government department I work in is paying for. That's not used, and BI being one of them. I mean, it's been I don't know how long they've had this, but I mean, they've had it for years, and we still haven't implemented it. And that's something that I've, it's a pity that that is the case.

Interview Number:	6
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	Okay, so I would say from a team perspective, definitely, yes, we definitely keen to do it. From a business perspective. I think there's certain groups that would really want to have it and hopefully with new blood flowing in, there will be better adoption to the tool. I think from a finance perspective, definitely we have spoken to a couple of finance users and they are very keen to start using BI
b. Does your team utilise the Oracle Business Intelligence Tool?	No
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	So we're talking about the bigger BI we're not talking about daily intelligence as part of EBS. No. So, obviously, we know we work in silos. So BI was a different team. So we that's not our scope of where we can scratch. BI is within a different team. So that's the prerogative to work there. But having spoken to Roland, who is the owner of BI, he is keen to start sharing, so maybe going forward they will be a movement of collaboration there.
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	Yes, because I mean, ultimately we our team looks of the EBS. So BI is, you know, it's not part of the EBS suite. So even though EBS closely linked to BI, it's not it's not part of the suite. So that's why we're not looking after that. I mean, we know there's API's between the two systems. So there's a definite link between the two and I supposed to work very closely together. So, so yes, I think the that's why the adoption between EBS and BI would be easier. Yes, because what you see is what is the readymade dashboards is built for EBS. So, the adoption rate for business to see what they see in EBS and then reflected and BI in a, in a more dashboard kind of way is going to be easier. And I think they'll love it.
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	I think once again; the people, the new people are definitely keen to use it. The older people that are more a bit more stuck in their ways. I think when you start showing them the benefits, even if there's a business process, change If they see a benefit to them, they'll definitely start using it. And I mean, obviously, we will need to push it. But yes, I think the moment the benefits are shown, they will use it.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	I would think so. I mean, typically, we also deal with issues now with payments or being paid late. So if you've got a dashboard that you can

	view or it alerts you every day of saying, Listen, this payment is due, you need to start making do an action. That's good. And I mean, from a from top management's perspective, if you look at a Riaan, for example, he doesn't want to see the detail. He just wants to go into his dashboard and see, okay, these are KPIs that he wants to focus on. And where's my issues.
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Yes
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of the government department you work in is supported.	And I also think because BI gets its information from EBS. So the validity of information in EBS and the governance behind the transactions in EBS is transferred into BI. So the validity is definitely there in BI. So yeah.
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of the government department you work in is not supported.	
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	No, from a team perspective, not that I know of. And then from a business perspective, no, because there hasn't been any adoption. So it hasn't rolled out to productions and nobody's got it. But we have shown it to them, but I mean, it's different from showing and from using
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	I would say the answer's no. But I mean, the old movement is to start training people and get them skilled up with all the processes and systems used utilized by the government department I work in. So I think future reference, yes but currently no.
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	I think that the business users have been stifled in technology training. I'm sure that training in their departments in in what they do daily, most days most probably options for that. But from a technology point of view they want to focus on in-house training. And BI isn't in scope now. So, yes. I really think they would rather focus on getting the people financially trained. Then even training them on the system on this financial system they use. So that's not the priority.
Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	Yes. It shows you trends that's the word I was looking for. So where if you've got a scheduled financial report that runs during off interims or during year end, I think the information is different from what you want from a BI perspective and I mean, I don't know BI maybe there is other reports that can run from BI. So if you're I don't know not on an interim, I see BI is a thing that you check it every day. Because that's you because you want to track where your business is heading. You don't want to receive an annual because that's what you get out of your

	finance system. BI has other functionality. That's how I see BI. Like I said, I don't know BI in all its detail.
b. If not, why does OBI tool not support existing directorate systems and structures?	
Add On	I think what we starting to punt now is was every report that comes out of EBS that it does not a user's requirement document that we want to we always have a portion of BI portion. So, we are trying to bring in so if you've got this report, you can also have this KPI and BI. So, just think of it in that way you can, you can get two for the price of one almost something like that. So, we are trying to do right now, every report. This is what typically what you can get an a KPI level in BI for the same thing. So just bear in mind that you've got that option as well. And selling BI a bit. So, I mean in typically with the budget report Deon and Roland has put together this budget report and that was exactly what Bianca needed. And the level what she needed, it couldn't be built in a normal EBS report. So that's it's all those benefits. That is not explained. So, the moment you can start showing that to business, they will want it and we've got it, so why not use it?

Interview Number:	7
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	I think there is a willingness yes
b. Does your team utilise the Oracle Business Intelligence Tool?	Currently, no. I can't speak for my team, I can speak for myself. I would love to, It's basically I don't have the time I've been busy with other instances I've used previously the previous iteration of Oracle BI, Oracle Discoverer and stuff like that, that evolved into BI. I've used that extensively at previous clients and I really liked it. And I think it's a great tool. Especially I what I expect from it is it's going to be a more visual graphical interface where Oracle Discoverer originally was more It was a graphic way of seeing your business area and your tables and your table structure in your database and then extracting information into Excel like environment. And there you could later on get graphs, but it didn't come out directly. And I just expect it to be more slick. And also to have more prepared business areas where in Oracle Discoverer you used to have to go and write or set up your own business areas and then only get to use it. What I've read about the is that it's got some of it pre populated and then you have to obviously go and add to it.
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	I think especially if it becomes more known to them. It will be even more, they'll be even more willing to use it.
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	I think the lack of knowledge, if more people in the business knew about it, they would utilize it more than I think another reason might be

	the licenses. I do not think that we own enough license. I'm not entirely sure, but I think the more people know it, the more they'll use it. But if I remember correctly, the license price is prohibited, not prohibited, but it is quite expensive.
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	Our team would be very willing, for example, the requirement that Deon just wrote He made a point of adding an extra option because in doing the requirement, you would propose solutions. And where he usually only had two being one being the manual and the second one being the automated order report, he added a third one, especially for BI saying that this can be done by BI a lot quicker and a lot prettier. So I think now we're all definitely willing to use it and willing to change and to integrate it in the current work that we're doing, like doing the proposals on the business requirements specification, but to add that as an extra possibility.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	Doesn't currently but I think definitely it will, a lot of my time personally is spent on reporting and preparing information at month end time for some customers and then also for some power users and I think that the availability the permanent availability of BI would definitely have an effect
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Yes, I think so.
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of the government department you work in is supported.	Because if you say that one of the objectives and values is transparency, transparency, quick turnaround. Good service to management and our client being the government. I think this will aid a lot in the availability of correct information and the transparency.
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of the government department you work in is not supported.	
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	We haven't been trained, but I think that we will be able to train ourselves with minimal instruction given our background and knowledge of the other Oracle business tools, I don't think it'll be too hard to pick up. So I don't think it's really necessary for us to go on these courses or anything like that. Just a few pointers and some time in a sand pit, but we really set us on our way to use it. I can't say that for a fact. But that's the feeling. I think that hard to grow into it as a user as an implementer. I'm not that sure. But, but just as a power user, I think we should be able to pick it up reasonably quickly.

114

	We all got 10 years plus experience on other Oracle products and we know the data here at the government department I work in intimately. So I think it shouldn't be that hard to pick up.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	I don't know of any. (No known training)
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	I don't think training is very strong at the government department I work in at the moment, so I don't think this is specifically that is very centred on BI itself. I think our whole training department can be uplifted and processes can be up to speed. So it's not just centred on BI. I think it's more to do with training as a whole. If I say that it's not, not easy, easily attainable, but I'm open to be proved wrong. I'd be happy to.
Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	The structures to me are a bit in flux at the moment. We're not always sure who we are reporting and reporting to not just reporting for our work, but who are we providing reports to and why. I mean, I have to send some reports out to clients outside of the government department I work in and some to management. So the structures aren't too clear to me at the moment whether it be BI or other reports. I think BI would support most structures but you need a structure to support. The lack of structures is the problem, especially the flux, the state of flux that we've been in since Johan has left. And the fact that Yaaseer is not totally integrated into the company as yet, he is not visible. We do not see him, we do feel his hand on the company as yet. We don't know if we should listen to the architects or to Christiaan or to Riaan or to Antonie. So the structures in the company is not, but it's not cast I would not even mention stone, cast in wood. So I think the structures in the problem, not the tool. But that is the case with most of our systems at the moment.
b. If not, why does OBI tool not support existing directorate systems and structures?	
Add on	I am excited to use it again some more. I think especially if we do have a proper view of who we report to, I think it would help a lot in streamlining our processes for month end and year end and providing that information. I mean, there is so many calls that we get regarding information that is actually so available to anyone, but you need to know where it is. For example, this morning Sam asked me for an urgent call, I have to stop everything and give them, her Riaan and Antonie the carrying values of all the vehicles that are going to be auctioned, but it is extremely urgent. But in the report she gave me she does have the cost and she's got the accumulated depreciation. If you subtract the two, you get the carrying value. So they do have the information but by having tools that can provide the information in the agile way quickly and saying this, they asked me for that for every auction. And I have mentioned it to them. So if I had a quick way of just having a standard graph or a report or extract to where I can just run it and give it to me,

	or even better they can do it themselves, because having to go through the whole ache of updating and creating another report for it on the system. It takes so long to do that. Where I think using BI would just be so quick. So I think that it will aid us a lot in a quicker turnaround of reports and graphs without having to go through the whole ache of enhancement process.

Interview Number:	8
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	No. I don't think so. And I think it's got to do with the level of maturity, you get the users. And I think also a portion of it is resistance to change. I think there's a fear that that was technology they might their jobs might be affected. So there's a resistance.
b. Does your team utilise the Oracle Business Intelligence Tool?	Yes, we do.
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	Let's say 50/50 on the traditional methods, and it's more for us on a strategic level. Trying to determine trends.
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	I think it's education. And I think a lot of people don't know BI, what it can offer. I think a lot of people still see it as a maybe just a reporting thing, and they're comfortable with Excel. And I don't think they realize the value it can offer. So I think it's got to do with education.
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	I think it's necessary, I think the BI tool is a method, an enabler. To process change. I think it identifies pain points, and areas where things can be improved and directly, and affect processes.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	Because of the adoption, not at the moment but I can I can see it happening which is awesome especially because it it's difficult to say because we come from the IT section I can see when we improve processes on the business side, internally for ourselves. I'm just trying to think where we had could possibly enhance our processes, maybe from a productivity point of view when we go to our projects, we do measure that level, then yes. And from a business point of view Absolutely, because I think we can see where the pain points of, a good example is the AP, you know, the invoice aging. As it takes forever to deal with. And so BI will obviously, most instances show whether the biggest holdup is and then indirectly, that process can be improved from a business point of view. And I think things can be streamlined, done in a better way.
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Yes

b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of the government department you work in is supported.	I think those values and objectives should be built into the tool and will enhance it. I think for that you need a, like I said those KPIs those objectives and strategic initiatives needs to be defined clearly. If it's done and put into the system then absolutely the probably the be the main driver or enabler for them to achieve those objectives and move away from the, if I can put it the operational way of thinking into more strategic and measuring it from that perspective.
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of the government department you work in is not supported.	
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	No, they haven't. I think the proper way to do is to slowly introduce them. And I think the best way is probably to take existing stuff. Port that over to business intelligence and get them used to it and then broaden their knowledge from there. Taking existing reports that is in Fleetman like simple ones, recreating it, giving it different dimensions and then improve the training to more advanced stuff. I think so. Yeah. I think that as well adoption as well, because then it's more familiar to them. Think of it as a big bang approach as we've done with the with the EBS stuff. I think it's too much. It's intimidating. And I think people are scared to use it.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	No there's none.
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	I think what needs to happen is that I think the way to do it is to train a person and business, I think it should be a joint operation between IT and business identify a champion and that champion to kind of train staff with within the business units but I don't think it should be driven from the IT side I think you'll find adoption better because it probably speaks the business language better. And I think if they see their superiors using it the adoption of the training will happen at that level. I think it should be driven from inside. So I think we should I think as with any project, when you think that that's why people still think it looks like we work in silos, you have initiatives and IT will develop it and implement it and expect people to start using it. Once you start running projects like this, there should always be a business user involved along the process. NO business user involved. I think that that actually prevents a better adoption. If people feel they are part of the process as opposed to it being forced on to them to using this.
Management Systems and Structures dimension	

a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	I think and EBS point of view and the BI yes, it does, once again, utilize, it filters data. It does. Yes, it does.
b. If not, why does OBI tool not support existing directorate systems and structures?	
Add On	Is there anything else you would like to add? For me, and I said it already, I think the main thing was that if you tackle on any project like this, that should be driven from the business side, they should be part of the requirements what it should be. Like I say they should have the champions on board, if you do that, and you have somebody that really believes in it, I think you can have better adoption. I think that's what I learned from when we rolled out the EBS financial analytics. And so we do that with a customized every module we roll out whether it be risk, bookings, whatever, is the person who's actually going to be using it. And this is also part of, if I can bring in the design thinking part of it. So have them with you to see what the needs are actually designed the system around them and requirements. Not the way we see it, it that will do wonders to the adoption. That's the main thing for me, the technology point of view, we know it can do everything in your studies around adoption. I think that's the main thing that and training. Having your champion and then in most companies, you know, we have a champion where they call the train the trainer. So you're training the person who's going to be training the staff. And the nice thing about that is they're going to be specialized in the niche. So they can own that part of say BI. Train the people once then I think once they start doing that, and their daily reports, whatever becomes more becomes easier for them. And it becomes the adoption, I think that's the major.

Interview Number:	**9**
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	That is a strange question, not a strange question but from my point of view is like we must adapt to whatever instruction we receive from management or from the it ICT people. So, we must just go with the flow, we don't have actually a say in whatever technology we must use. Obviously there is a willingness because technology is growing so everybody's making use of the highest quality of technology nowadays. So we just go with the flow whatever is working for us, we just go with it. And it's like, it's like you buying a cell phone. Today you buy one, a new one tomorrow, there's another one on the market. So everybody's just following the flow. like I said, everybody willing follow with what is available. So we are not unwilling, but some people will say yeah, this is going to cause problems again, obviously with every new technology there will be issues. But we are not unwilling

	We are willing, like I said sometimes, in most cases in a the government department I work in environment, we must follow instructions. But we are not unwilling, there is some people that are unwilling because of network issues or whatsoever new technology some people are not very keen on technology. Especially the older thinking people they think they can't think outside of the box, thinking like just so. So, like I said, I would say that we are not unwilling, we are willing to try anything that is new.
b. Does your team utilise the Oracle Business Intelligence Tool?	We do.
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	We are just making use of the AR functions, accounts receivable. Like the working with debt management or accounts receivable so we are just linked to the functions that's applicable to you.
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	You see on GOFIN there is different functions. So, like for instance on cash management there is a hierarchy of approval. Especially when it comes to the bank reconciliation wise, on our side there's certain limits. Like for instance, we do adjustments, I can't do adjustments, because I'm a supervisor. I have only viewing rights, where some of my staff have access to it until a certain limit, because their function was only linked to one person. So it's job specific.
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	When it comes to the SOPs (Standard operating procedures) or the processes, we always trying to look for ways to work smarter not, longer processes. But to work smarter in a way to make our more efficient, efficiently the end of the day, especially, if you look at where we started with GOFIN in 2011 up until now the processes, definitely changed a lot. So, what we tried to do is look at the processes and see if we can make it more efficient for staff to work on. Yes, we will change processes. That is why we look at SOPs and processes every six months or so. Like for now, as an example, we are busy now looking at the automotive process for the receipts. So less paperwork, work smarter and obviously a little bit faster. Instead of sending Excel spreadsheet to that one and wait for the person to capture and then send it back, and you know, sometimes someone sent you an email and never receive it, so you can't anything because the spreadsheet is attached to it. And then they finish and then they must print it out, sign, bring it back to me, then I must sign again, they must file it on a manual file, whatever paper file. So we're always looking for ways to make our work more efficient. Work smarter, because obviously, that is a long route to follow, to capture something, send it to another section. Wait for the person to create the receipt captured on the spreadsheet and then send it back and then we'll go back and apply that receipt, can you see now? long. And it is not sufficient. Because like I said sometimes someone will send an email, I

	never received it and at the end of the day it's hanging somewhere in the system because the e-mails didn't work or it didn't go through.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	Yes. Like I said, we're always looking for ways to work smarter. And also looking at ways especially when it comes to auditing to do it more sufficiently and efficiently at the end of the day. So always looking for, like the BI, will really help us.
Objectives and Values dimension	
a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	No
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of the government department you work in is supported.	
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of the government department you work in is not supported.	Not always You see, when you implement something, you look at it, you test it, you put in certain parameters in it, and you test it again and if it's not working in obviously business or the organization will tell you, listen here, don't you want to do an enhancement on that function over there. Then you can't say to business we can't do that and that is the reason, but you are not the user,
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	No training. Just logging in, by the government department I work in training section, especially the new staff that came in from 2017, they were not trained by the BI team, only for the government department I work in training side but it was only for log in. How to log in and looking at the menu and that's about it. We received in-house training from ourselves within the acknowledgement section of myself in the other staff systems staff.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	No
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	We've been requesting training from Deon them, but then they will refer us to the training people, client liaison team.We are not actually sure who must give us the training. There is no line of communication. Deon is our first line, and they will normally refer us to client liaison.
Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	Yes
b. If not, why does OBI tool not support existing directorate systems and structures?	

Add on	Mostly that reports, Our manager will receive it but I'm not sure if you have access to GOFIN, but they normally will log ticket and request from
	IT Support. So there is reports and if we, when we look at the Fleetman reports from IT Support who will just normally write a script because the report is not available on, certain reports, it's not available on Fleetman. These reports are not accessible because you need to log a ticket for IT Support and they have to write the script for us because it's not a report that we use maybe on a monthly basis or weekly basis. We received requests like for instance for expenditure on a GBX903. Then that vehicle allocated to one user code.
	But it's not all the other departments that will request that kind of report.
	There are your standard reports on Oracle. But they sometimes there will go out requests for a certain report that the department request and then we just log a ticket and then they will provide the info.
	So it does not always support every, every single request or requirement.
	Yeah,
	There are gaps
	We try to link it to, like I said to a set of reports that we need, but obviously this change management and it must go for approval. You know? So I'm just at the bottom. I just keep the input and further than I don't give approval. So I will follow up what is happening but like the mails that you sent, and obviously approval that's coming from management side.
	Sometimes I won't know unless IT Support inform me about the movement of a request.
	Sometimes business will implement processes of stages within process without realize the effects of it. Sometimes with every new technology there is a positive side and there is a negative. So they always looking at the positive effects, not always the negative effects that maybe sometimes an example ERP Corrections. They working on it. We've been asking questions, remember the two of us were involved and then they chuck you out and we've been struggling, can't get any corrections since the beginning of the year. So like I said, there is a negative and a positive way they implement and stuff.
	Is the feeling that they may be not always thinking of the bottom, like the actual people that were with when they make decisions?
	Yeah, we've been speaking about this since the Oracle thing started. The project manager will always tell him like, look at this and look at that. Not just that, yes, it looks good. The future looks very bright. But we've been here for a very long time we know what we talking about, listen and look into it and come back to us.
	Sat with the people explained to them end of the day working on something that is not wanted which means there will always be

problems. And there is still issues on GOFIN on our site, when we for instance when Theo was here there's certain things that we requested and he just told us, no. We can't do that
And that was not on because we are working on that function, and we need to do certain things on we won't ask because we had the users. And it's still the same and he is now gone for how long?

The technology must be made more accessible for management. Instead of management sending us email, remember in the beginning when they started working with GOFIN, everybody received training including management, everybody received licenses for this whole thing in the end of the day, they are not making use of it. They just send us this email. They want that report, but they do have access to it.
So instead of logging tickets for developers to draw a report that they have access to. You need to be in control of your own work. I want a report; I want to draw it. I want to chop and change it my way.
Because you know, sometimes he will request something. Then you don't know what he wants, like, especially the Fleetman reports there is seven Revenue reports that IT support must draw up every year.
But it's not available on Fleetman. It's just like writing of scripts, so at the end of the day, sometimes my Manager will send us a request. We will first discuss it and then we have a meeting with him and ask what does he really want to see the report? Because sometimes IT support will write the script according to the manager's specifications and then he will say, it is not what I want. It's every year that seven Revenue reports that he is working on, that is in mail, it is part of the Revenue cycle.
so they must make it more accessible for management.

When it comes to the training especially the new staff, I know in the past they had like different, like IT Support also gave us training in the beginning. So what happened, the training she gave us we didn't follow those processes. Like we don't create our own invoices etc so that is one of the things that they must still look into because we are receiving the invoices, we don't create it ourselves. Is this the invoices?
When it interfaces then it creates an invoice, it's an automatic process. So we just receive it on ECM. We didn't know whether it is right or is the info on it wrong, cause the invoice is already on the system you can't do anything about the existing invoice, you know what I'm saying? Because it's automated process. It's already there on the system.
So if you use the system today, it's there and if sometimes you open the invoice sometimes there's something wrong with the vehicle, the billings then you need to log a ticket. Since January we can't do any corrections I spoke to IT Support and he wasn't very happy because he's now doing a lot of work and the corrections must be done. You know he has the seven Revenue report, it picks up all the high ODOs, overbilling, vehicles what built, utilization of the vehicles because what he is doing is comparing like 2018 with 2019.
So if this is a new vehicle, why did the vehicle only drove for 10 ks
But that could be because they just don't send us their ODOs maybe.

	Or, we've billed them on a E Fuel that was very high and they are still capturing which is happening now, they capture but we don't bill them not because the averages are high. So they we need to, we can't correct on our side, IT Support has received a lot of tickets and I'm just pushing please correct me because of the billings for March because if we did things right or our side with him then he don't need this. The reports will be lesser and it will look better because Riaan must actually do it, like he will highlight certain vehicles and then he wants to see what is happening with a vehicle. We have an issue now with the Department of Home Affairs, ever since the allocation of the vehicles I think that goes back to 1999, I'm not 100% sure but they never capture the ODOs. So now in January, they send in their captured ODOs. So when IT Support pulled in their ODOs, so we have a meeting with them now 1 o'clock.

Interview Number:	10
Questions	**Answers**
Technology Dimension	
a. Is there a willingness to take on the technology that Oracle Business Intelligence Tool?	Yes, we do.
b. Does your team utilise the Oracle Business Intelligence Tool?	No, we do not
c. If yes, how much of the functionality do you and your team use? If No, what are the reasons you and your team does not utilise the Oracle Business Intelligence Tool?	
d. What are the reasons the Oracle Business Intelligence tool is not being utilised 100%	I really don't know because we kind of just get told what to use and that's it. So I think that would be a management question. Why are they not filtering everything through? Or, is it for us to go and say, this, we, that there is this new thing? Can we be trained on it? So I think it's like as in when needed at the moment. But if we can utilize it within our area, we won't obviously know if we can use it if we are not aware of it? Then out advocate and say yes. Train us up. It is a communication thing because if we don't know what's out there, we can't. We don't know, we don't know what we can use it for. So I would say explain it to us. And let's see how we can implement it if it's applicable. If not, then maybe we're not supposed to be using it.
Process Dimension	
a. How willing are you and your team to change processes in order to utilise the Oracle Business Intelligence tool?	It' going to make life easier 110%.
b. Explain reasons why there may be a resistance change the processes?	
c. Does the Oracle Business Intelligence tool enhance your and your team's processes?	We don't know, can't say that yet.
Objectives and Values dimension	

a. Does the Oracle Business Intelligence tool support the objectives and values of the government department you work in?	Yes
b. If 'Oracle Business Intelligence tools does support the objectives of the government department you work in ', please explain how the objectives and values of the government department you work in is supported.	So we did training in development, right? So business intelligence for my understanding is basically if you do something on the system, then it sort of like tailors itself to me on the right track. There gives you the report to go into what you would require. So at the moment really paper based, very paper based. So if we can take what we have in our files and put it into the system, I'm sure that BI can sort of draw conclusions in terms of where we can maybe improve on our work and we plan our work and where client complaints are concerned, where are our frequently asked questions and that type of thing that's what I foresee for that. Because at the moment, it's very paper based and all we do is you put it in the file and forget about it, but if we put it onto the system, the system can maybe say listen here, this has come up like a few times. So maybe look into that area. So do that with analysis that we are. If we don't pick it up physically, we don't. We don't have sight of it. But if you have like a system that's in the background continuously working on it and drawing data and, you know, we can put it into a report and say listen here this is my report, it's a comprehensive report, and it has an analysis for you. Something like that, that's how I foresee it can help us. Business processes, in my view, that's always a for debate. And we are always improving our business processes. We have to review it every single year. And it's not difficult to train if we need to change our process and like I say, make it simpler, more technologically based and less paper based. Why not? But for me, the important thing would be getting that analysis at the end of the day, because I feel that that stuff's sitting in the files is stuff we can use and when not optimally using it without getting appliance voices through because we just do it and what we hear in the class, but we don't actually go and do it analysis and say, Okay, but in the past six months, these are the things that came out of reports like we don't do that physical analysis. We don't look at trends. Literally we don't we don't all of that. So we are, I don't know if we are supposed to because never communicated. But for myself, if I, if a question comes up three times in a row, from different departments going forward, I address that question every time in my next training session. So that's what I've been doing. But if we can get a system or tool, that can tell us listen here, this is what is coming out of the client departments. We can address it instead of like a lot of things I feel gets missed. That shouldn't get missed. And I mean, our client departments are our money makers. We need to know them inside and out. And we also find with the client departments is different sections within the client departments that come that experienced different problems. That doesn't get put in our reports, because we literally report on that class today. But we don't say last week last month we had help and how someone will finance them. And this was finances problem. So maybe the transport office and the finance office that needs help needs to come together. So that is a type of things I foresee that would be able to help us. We're not using it at

	the moment. It just gets reported and signed off and filed for no reason really.
c. If 'Oracle Business Intelligence tools do not support the objectives of the government department you work in ', please explain why the objectives and values of the government department you work in is not supported.	
Staffing and Skills dimension	
a. Has your team been trained to use the Oracle Business Intelligence Tool?	Yes, but only certain functions again, I mean, I literally only been trained on navigation and how the training works is Pedro will train Shane and Shane will come and train us. So speaking client application. I actually requested that Pedro train me as well, because the message not necessarily gets lost. But I might have different questions to what Shane would have had and I learn differently as well. So with regards to that we have been trained, but we've been trained by each other. So basically, self-trained. Which is not ideal. So that is no formal training. So literally is on the job training and then you go and train someone else so, I always had the issue where I'm like, I need to learn from a subject matter expert because I'm someone who needs to know from behind the scenes what is happening, I won't necessarily explain it. But if I understand it, I can explain it. So yeah, that is my thing.
b. Do you know whether there is any training provided for staff on how to use the Oracle Business Intelligence tool?	No, there isn't. I don't know if there is training available.
c. Do you know why your team may not been given the opportunity to skill up in order to use the Oracle Business Intelligence tool?	
Management Systems and Structures dimension	
a. Does the Oracle Business Intelligence Tool support existing directorate systems and structures?	I can't answer that, I don't know.

100%, I spoke about this now, definitely.
I think there should be some sort of roll out. |
| b. If not, why does OBI tool not support existing directorate systems and structures? | |
| **Add on** | I think the government department I work in really needs to be more open and transparent when it comes to the new and innovative systems that are out there. I think the staff needs to be involved way more than what they are. And like you said, it was rolled out, rolled out to who you know, so that is definitely what I would do. Because I mean, with a system like that, or with an application like that, wouldn't your staff have? Because they're the ones who want to work with it. So wouldn't they be your subject matter experts in their field and be able to guide you? So it's like creating this thing and then saying here, do it, but there is no input from us. |

	I think it's an approach that really needs to change. And I think with the new direction, that the government department I work in is heading that way and we are actually looking at doing things from more the staff members perspective, and getting staff members involved because that's where your information is, that's where knowledge is. So work around that instead of Okay, no we think this will be a good idea. You are supposed to be doing this, so do it this way, and then it doesn't work at the end of the day. And then you wonder why. So it will be the same for us as staff members to then work citizens centric and take the citizen into consideration in doing things. So it's kind of like a two-way thing, but everybody works together. Collaborates together