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Investigation of a holistic property management approach in a Government Department

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A research report proposal submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Masters in Engineering

August 2018

DECLARATION

I declare that this research report is my own unaided work. It is being submitted to the Degree of Master of Science in Engineering to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.

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ABSTRACT

There is a growing recognition and adoption of asset management strategies amongst public organisations. This is due to the potential improvements asset management has on property management. This trend has been identified by the National Department of Public Works (NDPW) and has created the Property Management Trading Entity (PMTE) on achieving the full benefits from implementing an asset management strategy. Some of the factors contributing to the current property management problems in NDPW are such as lack in leadership and reactive management. This study seeks to identify the opportunities and weaknesses in the Department of Public Works adopting an asset management strategy.

The literature review conducted was used to determine asset management strategies adopted in government/local organisations. Some of the opportunities were then highlighted from the benefits of asset management, such as improved service delivery and cost saving whereas some of the weaknesses were highlighted from the challenges such as strategy implementation. A qualitative case study methodology was chosen as the appropriate method to identify possible opportunities and weaknesses. Three sources of data collection methods were utilised which included, documentation, semi-structured interviews and participant observation.

The findings suggest that the current property management at the NDPW is reactive and does not meet the accommodation needs of its user clients. The implemented asset management strategy (PMTE) achieves the requirements of an asset management model with support from employees in the organisation. The opportunities and weakness identified coincided with literature, however were specific in the South African context.

DEDICATION

To my loving and supporting parents,

Veena Loopoo and Dhanieshlal Loopoo

And

To Terusha Ramchund, for your inspiration and encouragement.

ACKNOWLEDGEMENTS

I would like to express my utmost gratitude to Prof. D. J. Kruger and Teresa Hattingh for their assistance, constant encouragement and supervision throughout the lengthy process of doing my research and writing this research report.

I am also grateful to the various participants in this study and taking part in face to face interviews. Special thanks are due to the National Department of Public Works for which my study would not have been possible without such support and commitment.

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LIST OF ACRONYMS

DPSA	Department of Public Service Administration
GDP	Gross Domestic Production
GIAMA	Government Immovable Asset Management Act (19 of 2007)
ISO 55000	International Standard Organisation for Asset Management
KAM	Key Account Managers
NDP	National Development Plan
NDPW	National Department of Public Works
NT	Department of National Treasury
TAU	Technical Assistance Unit

1. CHAPTER 1

1.1 Introduction

A need has been identified for an appropriate mandate which would ensure effective delivery of property assets and to improve and create provision of State accommodation by the National Department of Public Works (NDPW).

The Department of Public Works through the Government Immovable Asset Management Act 19 of 2007 (GIAMA) is mandated to manage and oversee all immovable assets of all organs of State unless an exemptions notice has been gazetted by the Minister of Public Works. The NDPW acts as a custodian for the State's immovable assets, which represents the largest property portfolio in South Africa. The State has underutilized its property portfolio by, leaving numerous properties vacant, neglecting maintenance on existing property, leaving properties susceptible to theft, vandalism and illegal occupation (Department of Public Works, 2016).

This has resulted in user departments (all State Departments) not fulfilling their service delivery objectives and has led to the use of costly leased accommodation from private sector companies. In turn it has impacted negatively on the national budget from the Department of National Treasury (NT). Therefore, a clear need for accommodation solutions by the State has been identified and a property asset management framework is required. A framework which provides adequate understanding of local conditions to optimise the States property portfolio. An asset management framework would aid the National Departments (NDPW and NT) by improving cost saving service delivery and extend the life-cycle of current and unutilized properties.

Ngwira (2015) emphasised the need for a flexible and adaptable asset management framework across different organisations. Woodhouse

(2010), postulates that there is no evidence of an ideal model due to the existence of a variety of asset management frameworks. In 2012, the minster of the NDPW initiated a seven-year turnaround strategy to rebuild the Department of Public Works with a functional Property Management Trading Entity (PMTE). The PMTE was not only geared up to implement an asset management system but also contributed to the National Development Plan (NDP) priorities through its operations (Department of Public Works, 2016). Ngwira (2015) reinforces the idea that asset management practices differ for every local government organisation. Practices such as organisational culture; leadership; size; economic and cultural composition of the communities they serve; geographical and political difference have an influence on asset management.

Hence, this research is established on the premise that, a property asset management strategy is implemented by the NDPW, whereby, the strategy would identify opportunities and challenges which would result in the development of improvements. It is envisaged the findings would be beneficial to the management of properties in the public sector including, the NDPW and elsewhere in developing economies with respect to a holistic approach to property asset management.

1.2 Preliminary literature study

1.2.1 Background to the research

In recent times a decreasing confidence existed in the National Department of Public Works to align the accommodation needs of the user government departments. The **accommodation needs required by the user departments are in terms of office space** to meet national departmental objectives. The creation of the Department's White Paper (1997) – "Public Works towards the 21st Century" has not only provided a framework for fulfilling the NDPW mandate and government priorities, but has also introduced the concept of charging user departments for utilizing

state owned accommodation. It also identified operational weaknesses of the NDPW performance in property, facilities and asset investment management (Department of Public Works, 1997).

To respond to the challenges, the NDPW have identified strategic priorities to mitigate the short to medium objectives. These objectives are: anti-corruption and anti mal-administration, together with the Property Management Trading Entity, as per the 2006 National Treasury approval was identified as crucial for the turnaround strategy (Department of Public Works, 2016). NDPW own and control a significant operational property base.

According to Kaganova, McKellar and Peterson (2006), property belonging to local government is important as it can be used as a physical platform to carry out its activities and public management objectives. It is supported by Megan (1999), **as the properties is reflect as assets on** the balance sheet which can be collateralised for borrowing and implementation of government operations through service delivery.

1.2.2 Current status of research

The Department of Public Work's responsibility in South Africa is to effectively manage the current property asset portfolio to meet local objectives. The current approach is more reactive, creating fragmentation in the operational requirements rather than meeting the needs of the users. This approach is highlighted by Kaganova and McKellar (2006) and Kaganova (2010), as being fragmented, as property management requires local departments to be involved in managing, financing and utilizing properties efficiently. The fragmentation occurs in terms of poor implementation of strategies, policies and management of resources. The disjointed approach of the management of property results in under performance of the asset and is consequential to economic inefficiencies.

The economic inefficiencies are substantial and mean there is a lack and underutilization of property (Ngwira, 2015).

NDPW have recognised the need for an asset management system, which has been critically mentioned in the white Paper (1997), which later resulted in the creation of PMTE. It was further reinforced by the PMTE strategic plan (2016), as there is a requirement to implement a property asset management framework. PMTE seeks to take successful operationalisation steps in providing optimum accommodation solutions and the management of the State's immovable assets functions across the assets lifecycle to ensure value for money is gained.

Bulita (1994) put forth a complete definition of the property asset management concept as follows:

"Asset Management a term that came into vogue in the mid-to-late 1960s is defined as the process of maximising value to a property or portfolio of properties from acquisition to disposition within the objectives defines by the owner. This concept uses strategic planning, which includes investment analysis and operation and market analysis, as well as the positioning of a property in the market place in accordance with market trends and conditions".

One of the **key impacts** on the ability of the commercial property industry to grow is the dependence on Government's capacity to address infrastructure backlogs. Aside from the decline in capital expenditure on new construction works, this has applied pressure on low economic growth. Rising operating costs, such as, electricity, municipal rates and taxes, and water supply issues have exerted pressure on tenants. Therefore, the above definition seeks to describe the underlying turnaround strategy of PMTE. The strategy not only seeks to strategically acquire land but also reduce over-reliance on private leasing, by balancing the leased portfolio with existing accommodation.

The **property life cycle** within property asset management comprises of four stages: planning, establishing/procuring, utilizing/operational and disposal (Abdullah, Razak, Hanafi, & Pakir, 2012). The approach to property asset management involves two components, the strategic and operational. These two components, the strategic aspect focuses on meeting the property objectives (client/customer) needs, whereas the operational component focuses on the management of the property.

White (2011) indicates a growing interest within the international community on the adoption of an asset management framework. The increasing interest has the potential to improve current property management practices. Public sector organisations globally have begun to adopt the asset management approach. For instance, countries such as New Zealand, Canada, Australia and France are frequently referenced in the area of public asset management reform (Beauchamp, 2009; Hanis, Trigunarsyah, & Susilawati, 2010). The above countries are actively practicing public asset management systems according to Conway, Kaganova and Mckellar (2006).

Nations such as the United States and the United Kingdom have begun creating reforms and implementing systems to proactively plan and manage their property assets in the public sector. Other third world countries, like Malaysia, Serbia (Abdullah, Razak, Hanafi, & Pakir, 2012) and countries across Europe and Asia have now begun implementing asset management models and establishing standardised asset management manuals and procedures to change the way government properties are currently administrated and managed.

The aim of the research is to use the National Department of Public Works as a case study and identify the opportunities and weaknesses faced by the implementing an asset management framework.

1.2.3 Research Question

From the foregoing, the research question was proposed:

What are the challenges and opportunities experienced by the National Department of Public Works in adopting an asset management framework?

1.2.4 Research Objectives

The above research question assisted in setting the research aim. The aim of the study is: “To identify the challenges and opportunities faced when adopting a public asset management framework”.

To realise the aim the following research objectives are to be determined in the research report:

1. Review the current property management system at the NDPW
2. Assess employees’ perception and understanding of Asset Management and its associated benefits.
3. Identify the possible opportunities and challenges offered in NDPW turnaround strategy (PMTE, asset management).

1.3 Research design and Research Methodology

The identification of a paradigm is essential to the success of the research. A clear definition of the research aims influences the research methodology of the selected research paradigm in order to study a particular research phenomenon. Therefore, a clear and defined research objective determines the overall success of the research by implementing an appropriate research methodology.

A researcher’s perspective or set of ideas and beliefs may influence the kind of research design they adopt (Creswell, 2007). An essential question a researcher may ask himself, is what research approach does one use to

find answers to the fundamental research questions. Does one turn to qualitative or quantitative methods of data collection exclusively? Or are there better investigation methods, or does it make sense to use mixed methods? An assumption held by researchers' on whether to embrace a qualitative, quantitative or a mixed method research approach will often lead to these choices. The distinction between these three approaches has major influence on the method of analysis and data collection.

There are several research methods which exist for satisfying various research requirements. These different research methods are applicable to qualitative and quantitative research. The methods commonly identified with qualitative research include: case study, phenomenology, grounded theory, narrative research, action research and ethnography, while those associated with quantitative research include: experiment, quasi-experiment and non-experimental or surveys (Creswell, 2007; Polit and Beck, 2003; Denscombe, 2007; Blaxter, Hughes and Tight, 2010).

To address the research aim and objectives listed above, an appropriate research model had to be identified and adopted to form the basis of the study. The research approach consisted of a comprehensive study of literature review on concepts of property asset management and asset management frameworks used in local government entities. The review of literature also assisted in determining an appropriate choice of research method and the identification of current asset management practices used in the study.

In order to understand a real-life phenomenon in depth, a qualitative single case study method was selected.

Action research focuses on research in action rather on research about action and is essentially about change (Coughlan & Coghlan, 2002). Action research can be seen as an alternative to case research (Farooq & O'Brien, 2014). A clear difference in the two research approaches is that,

in case research, the researcher is independent, whereas in action research, the researcher becomes a participant in the implementation of a system, and the process of change becomes the subject of the research (Benbasat, Goldstein, & Mead, 1987). In case study research, it provides a systematic procedure whereby, the researcher collects, analyses data and reports on results. Whereas in action-based research, it provides an opportunity for finding other ways of research based solutions through dynamic problem solving. Therefore, case study research solutions inform us on why things happen a certain way and provides us with information to make changes based on past examples instead of our own actions. Action research was equally found unsuited for this study as in action research; participants involve themselves as researchers collaborating with the primary researcher. Whereas to realise the above objectives, the researcher is to participate in the practice of asset management alongside practitioners.

The essence and tendency of a case study, among all types of case study is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented and with what result (Yin, 2009). When there is an opportunity to learn, which is of major importance, then case study research methodology is more useful. Case research also provides a mode of inquiry for an in-depth examination of a phenomenon (Yin, 2009). Flyvbjerg (2006), defines a case study as the detailed exploration of a single type, but disagrees with the traditional view that a single case study can't provide reliable information about a wider range of applications. Yin (2009) agrees with the use of case study research by describing a case study as a research tool that can provide a detailed investigation of something new, not-understood or unexamined, which seems to be the case in South Africa as far as asset management frameworks are concerned. In terms of the choice of research methods

appropriate for the study, case study approach is the most appropriate method.

The study is largely in many ways a conventional qualitative study using case study design. Information will be obtained using three sources of evidence, these included: documentation, semi-structured interviews, and participant observation. The data collected will be analysed using qualitative content analysis.

1.4 Limitations

A single case study has several limitations, the ones' that stands out, is that the findings cannot be generalised (lack of generalisability of results) and non-standardisation of measurement. An adequate sample size was taken for the interviews to conclude the case findings at NDPW. The researcher should take caution, being a participant in the research and not be biased when designing the interview questions, until drawing up the findings of the case study.

1.5 Ethical Clearance

The study will adhere to the framework and policies outlined from the School of Mechanical, Industrial and Aeronautical Engineering. The clearance number is: MIAEC: 008/17 (Appendix 1, Sections 8.1). The NDPW granted permission to conduct research can be found in Appendix 1, Section 8.2.

1.6 Structure of the research report

The research report will be presented in the following format:

Chapter 1: Introduction and Background: Provides an overview, introduction and background to the research project. The background outlines the current asset management environment in the public sector

environment, the rationale within the NDPW under South African circumstances, the research question, aims and objectives of the report. The researcher also attempts to conceptualise the integration of an asset management system in local government.

Chapter 2: Literature Review: This chapter will review a related known body of knowledge about the fundamental principles of asset management, the implementation and framework adopted by local government and the opportunities and weaknesses created by the integration process. The chapter presents different views of the researches field of study.

Chapter 3: Research Design and Methodology: This chapter delivers the methodology to be adopted in this study. The research design will cover the philosophical position of the researcher in relation to the process of enquiry and the approach followed in the study. The chapter will further elaborate on the motivation for the choice of qualitative research method and the importance of the use of multiple sources of data.

Chapter 4: Presentation of results and analysis of findings: Presents the analysis of data collected from documented sources and the detailed interpretation of the findings.

Chapter 5: Discussion of Results: The findings of the study is analysed and discussed further in terms of the objectives of the research.

Chapter 6: Conclusions and recommendations: Offers the conclusions and recommendations of the research report and compares the results of the study with theory from the literature review.

2. LITERATURE REVIEW

2.1 Introduction

In the wake of an increase in public expectation for improved public services, local government entities have to respond to changes that affect the demand for public infrastructure. Due to the expectations, public services have had to evolve to ensure changes in funding and delivery of public services. Increasing the efficiencies and effectiveness of service delivery, public sector organisations have been advocating a property asset management regime to be implemented in a strategic way. Asset management is the strategic framework that public sector entities, like the NDPW advocate. In order to identify the challenges and gaps of the current government asset management system, it is crucial to have an understanding of a defined property management system.

The purpose of this chapter is to provide a detailed background on the current management of public property assets and to outline the fundamental concepts in asset management. Firstly, review existing literature on the current property management practice within the National Department of Public Works (NDPW), followed by a review of asset management, asset management model for local authorities and the benefits thereof. Lastly, the challenges and trends in asset management development are also outlined herein.

2.2 Current Property Management Practice

At the beginning of February 2015, the States property portfolio was estimated at a value of more than 425 billion Rands, which included properties: state domestic facilities and (buildings and structures) land parcels (vacant land) (DPW, 2016). Consequently, the expectation is for government to have a well-defined and effective system to manage the

assets. However, it is not currently the case as the department is still unable to realize any opportunity income from the assets (DPW, 2016).

Problems such as mismanagement of existing buildings, abandoned buildings that lead to vandalism, theft and illegal occupation as well as inadequate maintenance on existing buildings have resulted in substantial financial losses within the NDPW. Improper planning of these assets has led to poor and unsafe conditions for occupying government departments (DPW, 2016). Government departments are now forced to seek private office accommodation. The result is additional debt for the State and places a strain on economic growth. These challenges together with the rising inflation have contributed to the very low Gross Domestic Production (GDP) growth of 0.9 to 1.3% in 2015 to 2016 period (DPW, 2016). It is a very low figure, which is nowhere near the 6% annual growth target in the NDP.

Prior to the turnaround strategy (inclusion of the asset management concept) implemented by the NDPW, the operations and management of property assets adopted a **reactive management approach**. This is due to insufficient planning over the lifetime of the asset. The nature of the approach is narrowly focused and less strategic, which tends to be fragmented resulting in economic inefficiencies.

The discrepancies between the objectives and the outcome may be emanating from within the government itself. Presently, some of the State-owned property portfolio has been sold to the private sector, which views ownership and management of property as a mode of investment (Abdullah et al., 2012). As such, cost-leased accommodation is provided to end-users to perform their mandated objectives and maintain other needs which are often neglected.

It has therefore, become clear that the State needs to provide and promote State-owned accommodation to reduce leased housing, increase service

deliver to user-departments and ensure that analysis is done on the assets. Property belonging to the State is very important as it can be used as a physical platform to carry out its activities (Megan, 1999). Assets such as parks and open spaces provide recreational opportunities. State–owned buildings provide communities with places to meet and obtain information and access to enjoy arts and cultural activities (Vermiglio, 2011).

Although, there is a legal framework designed to improve public asset management, it is inadequate compared to the size of the public asset portfolio. Hence, an effective asset management framework is required to mitigate the current challenges, and further improve and create provision of state owned accommodation by the National Department of Public Works.

Only recently have local governments/authorities and public organisations, internationally begun to appreciate the value unlocked from adopting a strategic property asset management practice. According to Kaganova, et al, (2006) governments have only begun to understand the full implications, responsibilities and duties of managing government properties within the last two decades. The focus of property management, commencing during the late 1980s, by local authorities was typically targeted at those responsible for managing properties (Kaganova, 2006). This group of individuals would be relatively small in comparison to the overall organisational structure and its range of activities.

Lately the strategic approach to property management provided the opportunity for local governments to implement broad polices. Policies to address user demand, control monitoring processes for local managers and feasibility analysis on the assets lifecycle. For instance, Kaganova et al (2006), refers to a framework with the above characteristic as an asset management approach to managing property assets.

Gibson (1994) emphasises the inadequacies associated with local authority property management due to the absence of a strategic focus. Gibson (1994) postulated that there was an absence of a strategic framework to manage public property. The lack of a strategic approach was observed in the Department of Public Works White Paper (1997), whereby a growing recognition for effective management of properties involves developing a broad policy framework.

The framework, which is typically asset management based, would require managing properties in a manner, which would address the user clients and property manager's needs (Ngwira, 2015). Kaganova et al, (2006) highlights that an asset management framework helps local government to achieve efficiency and effectiveness by minimising operational costs, efficient use of facilities and identifying the best use of assets.

The problems associated with the current property management practice are not unique to South Africa. Prior to the adoption of the asset management system, governments in developed countries such as UK experienced similar challenges. A study by Ngwira (2015) on the UK government management system identified problems such as narrow focus on targets, which focuses on responsibility for managing properties and ignores end users. It was attributed to the government lacking wider strategies, policies and rules to manage properties.

In addition, due to inefficient management practices government were unable to exploit surplus and under-utilized property as there is no mechanisms to transfer property between local committees who are entrusted with the legal ownership of the property. Furthermore, there were no mechanisms to identify surplus property for disposal (Arnaboldi and Lapsley, 2010). However, the implementation of an effective asset management system resolved most of the above-mentioned challenges. Therefore, it is imperative that South Africa adopts a similar asset

management system to mitigate the present challenges and ensure effective service delivery. A detailed report of the implemented asset management framework is given in the next section.

2.3 Overview of the current NDPW Asset Management strategy (PMTE)

The National Department of Public Works' main mandate is the custodian and manager of the South African governments' immovable assets. This mandate directly affects the efficiency and effectiveness of all clients departments and service delivery. However, the NDPW has a reputation of corruption, mismanagement and poor performance, which led to the NDPW failing to deliver on its mandate (PMTE, 2015). It has led to 8 years of underperformance culminating in adverse audit findings (2 consecutive disclaimers by the Auditor General, largely due to the failure to operationalize the PMTE).

The turnaround strategy initiated, comprising of a **seven year business improvement plan, was launched in January 2012**. The core of the strategy comprised of two pillars: zero tolerance of fraud and corruption and improving business (property management).

The creation of PMTE, where **Figure 1** highlights the timeline, hark back to the NDPW 1997 White Paper where it first introduced the concept of User charges to the client departments. A submission was then drafted for submission to the cabinet whereby the request for a dedicated entity, within NDPW, responsible for management of State property. This was approved and in 2002, the National Treasury (NT) for funding and the Department of Public Service Administration (DPSA) staff creation approved PMTE in principle. By 2006, NT provided the official approval on the following two conditions: Budgets were developed for user departments to fairly reflect the cost of government services and PMTE became the vehicle to implement user chargers on accommodation.

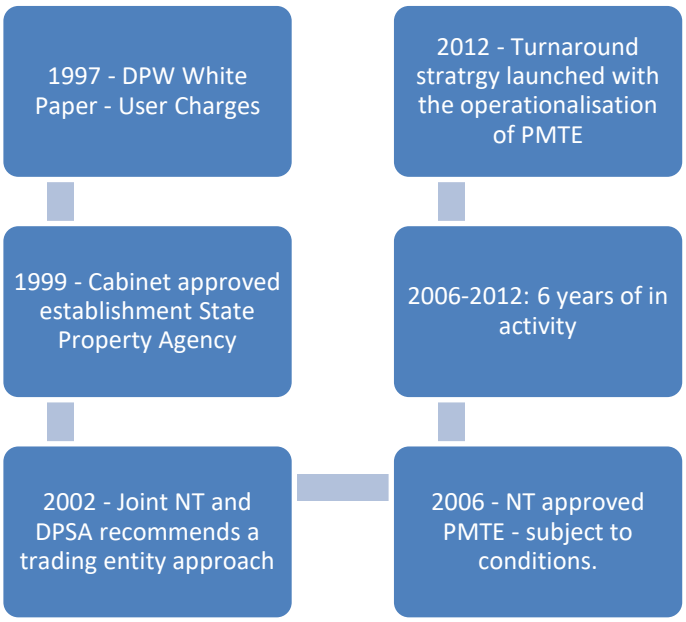

Figure 1: PMTE timeline (Researcher)

The PMTE requirement is to enhance the property business in order to optimally utilise the State's property portfolio productively. The rationale of the operationalization of PMTE is to ensure the ability of NDPW to generate, retain and reinvest revenue for proper asset life cycle management and compliance with best accounting principles. The PMTE will be a client-centric and revenue focused entity applying the principles of asset management to ensure lower service delivery costs and sustainability. The obligation in terms of the national goals and objectives are listed as follows:

- Provide accommodation to Government (GIAMA mandate): Asset Management
- Address spatial imbalances of the past such as: small and rural towns, provision of land and human settlement and reform
- Contribute toward national developmental agenda

There are two Value Drivers (**Table 1**) whereby PMTE will want to be pre-eminent accommodation and real-estate management service provider for National Government.

Table 1: PMTE Value Drivers (Researcher)

Value Driver 1: Improve Service Delivery	Value Driver 2: Save Costs
Work continuously to influence service design and improve service delivery. Respond proactively to State's / Client's intentions. Continue to build on the development and delivery of services closer to home (Client-Centric). Deliver high quality outcomes. Demonstrate the benefits of delivering integrated Real Estate Management services: 1. Asset Investment 2. Real Estate Management 3. Facilities Management	Work within a financial plan that supports and enables the delivery of services. Identify opportunities for developing and enhancing services. Continually assess our business and market position to ensure we remain valued by our service users. Maximize the effectiveness of resources by being efficient and innovative.

An interdisciplinary approach was adopted, with greater synergies between DPW's traditional property and asset management functions to deliver an integrated approach. The core business of the PMTE (**Figure 2**) consists of three focussed operational divisions:

- **Real estate investment management,**
- **Real estate management, and**
- **Facilities management**.

There are a further two divisions that will collectively realise PMTE's asset management goals and services to the State:

- **Real estate information & registry services, and**
- **Construction Project management.**

The three core operational divisions and two interlinking divisions will collectively realise its asset management goals.

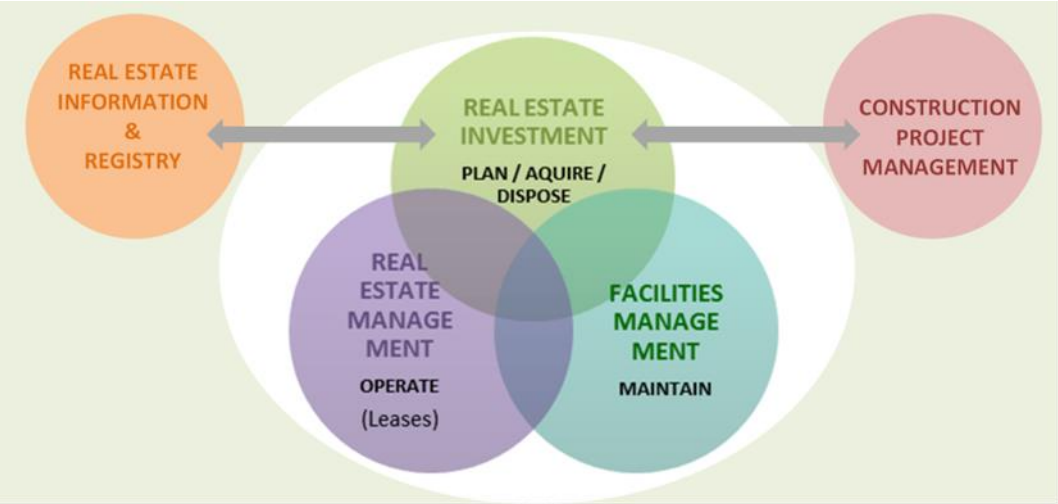

Figure 2: PMTE Business Model (PMTE, 2016 p 46)

The execution of the asset management plan will comprise of three areas:

- Core Business (Plan & Acquire – Operate – Maintain – Dispose): Real Estate Registry Services, Planning and Precinct development, Real Estate Investment, Real Estate Management, Facilities Management, and Construction Management.
- Enabling Services: consisting of Financial Management and Accounting, and Supply Chain Management (PMTE, 2016).
- DPW Shared Services: consisting of Internal Audit, Office Support, Corporate Services, and Governance.

2.4 A review of Asset Management

A need has been identified for an effective management system to manage the local property portfolio and to create a platform for setting up state-owned accommodation. The need is driven by wide ranging influences including maintenance legacies, rising service standards, socio-economic changes and scarce public funds (Kaganova et al., 2006; DPW, 2016).

Hence, a comprehensive asset management framework is required to curb the current challenges and release maximum financial value from the public property portfolio. Asset management is defined as a: “a structured process that seeks to ensure best value for money from property assets in serving the strategic needs of local authority organisations’’ (RICS, 2008, p.5). It extends over the entire life cycle of assets from selection up to and including disposal, and all phases in between. This section of the study will begin to define the terms asset, asset management and asset management framework.

2.4.1 Assets

An asset is an item of value that will vary between organisations and their stakeholders, which can be tangible or intangible, financial, or non-financial (ISO55000, 2016). An asset is any plant, machinery, property, buildings, vehicle, and any other item that has value to the organisation. Davis (2016) postulates that any item of economic value owned by an individual or corporation is defined as an asset. Corporations may wish to group assets individually per needs. Such groupings may be by asset types, systems, or portfolios (ISO55000, 2016).

2.4.2 Asset Management

Value can be extracted from utilizing assets optimally and will be of great interest to owners, stakeholders, customers, regulators, communities or the general public (IAM, 2012). Owners of property assets want greater value for lower costs from their assets (CSA, 2012). Asset management can be perceived as an integrated framework that combines tools and techniques to achieve targets that deliver added value to the asset owner (IAM, 2012).

Asset management and asset maintenance has been frequently used interchangeably in the industry, when they are actually separate objects. Asset management has since, evolved from maintenance management to provide a holistic approach to managing the life cycle of a physical asset (Mollentze, 2005). The purpose of maintenance management is to manage activities performed on the asset and related to the cost of maintenance. An asset management system is to oversee the whole-life view of the asset and allow the organisation to develop policy and strategic decisions regarding funding (Rose et al, 2012). Asset management is a mind-set, which seeks to extract the best from the assets for the benefit of the owner and to create an understanding of managing the risks associated with owning the asset (Davis, 2016).

The International standard of asset management (ISO55000, 2016) defines asset management, as an ‘international standard that covers management of various assets, it enables an organisation to realise value from the assets in achievement of an organisational objective’ (p.3). It is a structured approach for the development, coordination and control of activities undertaken on assets by the organisation. These activities are initiated over different life cycle stages of the asset, whereby these activities are aligned with its organisational objectives (ISO55000, 2016).

2.4.3 Asset Management Framework

Asset management consists of two entities, namely a strategic and operational component (Abdullah et al., 2012). The strategic component ensures that land and building assets are optimally structured and aligned with its co-operate goals and objectives (RICS, 2008). It includes decisions about the number, type and location of assets required to meet the organisation's objectives. Yiu (2008) suggest a strategic management approach is concerned with formulating, implementing and evaluating cross-functional decisions that will enable an organization to achieve its objectives. The operational component of asset management delivers the strategic asset management objectives by undertaking the professional, technical and management work to ensure that property is in good condition, form, layout and **location desired** (Ngwira, 2015).

A typically comprehensive asset management framework is composed of various key elements, which start with identifying all state-owned assets (Byrne, 1994; Kaganova, 2012). Knowing which property belongs to the state, why it is required and how it is used is an extremely high priority. Creating a property database is another key element, since the asset management process depends on accurate and thorough data. Data representing the best and worst performing properties and portfolios including a special section on real properties which the state does not control but supports financially (such as public assets, office accommodation etc.,) should be listed in a computerized database system (Kaganova, 2012).

Once the above-mentioned elements are in place, identifying core staff and creating a department dedicated to asset management becomes a crucial step. It ensures that responsibility is centralized and accountability for the results of the management process can be monitored.

Formulating the strategic role in attaining the department's goals is also another crucial element of an effective asset management system. It involves evaluating whether the strategies formed reflect the true values of the department, and thoroughly debating any decisions made (Kaganova, 2012). When all the key elements have been undertaken, implementing the portfolio management practice becomes the next, key step.

The asset management department establishes objectives, implements plans to achieve the objectives and thereafter monitors progress towards such achievements. The strength of a good asset management system lies in the connectivity between the organisation's strategic plan and on-the-ground daily activities of individual departments in planning, engineering, procurement, operations maintenance and performance management (Sapeciay et al., 2013). Measuring the effectiveness of property and facilities management is a critical component of better property management and provides the opportunity for increased productivity and delivery of savings (Kaganova et al., 2006).

The realization that the asset management approach has a potential to improve property management has led to its growing acceptance, especially within the international community. Public sector organisations globally have begun to adopt the asset management approach. For instance, countries such as New Zealand, Canada, United Kingdom, Australia and France are frequently referenced in the area of public asset management reform (Beauchamp, 2009; Hanis et al., 2010). The aforementioned countries have effectively reformed their asset management, and are actively practicing public asset management systems (Conway et al.2006).

Other third world countries, like Malaysia (Abdullah et al., 2012) and countries across Europe: Croatia, Serbia Poland (Kaganova, 2012) and Asia: Kyrgyzstan (Kaganova and McKellar, 2006) have now begun

implementing asset management models and establishing standardised asset management manuals and procedures to change the way government properties are currently being administrated and managed. Therefore, the adoption of a similar asset management system in South Africa by the DPW has major benefits as discussed in the next section.

2.5 Asset Management Model for Local Authorities

As discussed in a previous section, the NDPW has a seven year turnaround strategy to optimise the state owned property management. However, little progress has been made in this respect. This is due to the tedious task of implementing business improvement programmes and the operationalisation of the PMTE. In the following section the researcher discusses general guidelines for developing an effective asset management framework.

Becoming a high performing asset management organisation requires substantial change and dedicated amount of time, but en route, important near and long term performance improvements can be realised (Rose et al, 2012). Rose et al (2012), lists the principles for asset management implementation below:

- Understand the corporations' drivers
- Advance upon existing strengths
- Provide value
- Realise asset management is a process
- Invest strategically
- Train and develop human capital
- Prioritise people, tools, and information
- Provide top-down leadership and assign clear ownership for asset management activities

The methods and steps are based on international good practice which were summarized by experts and tested through projects in Europe and Asia (Kaganova, 2012). The model below suggests a systematic approach which local governments' asset managers can implement individually. It consists of activities/ steps summarized in **Figure 3** (Kaganova, 2012). It is envisaged that a comparison of this system with the current seven-year turn around system could assist local authorities in South Africa to identify hindrances to achieving the ultimate goals of a truly comprehensive asset management system.

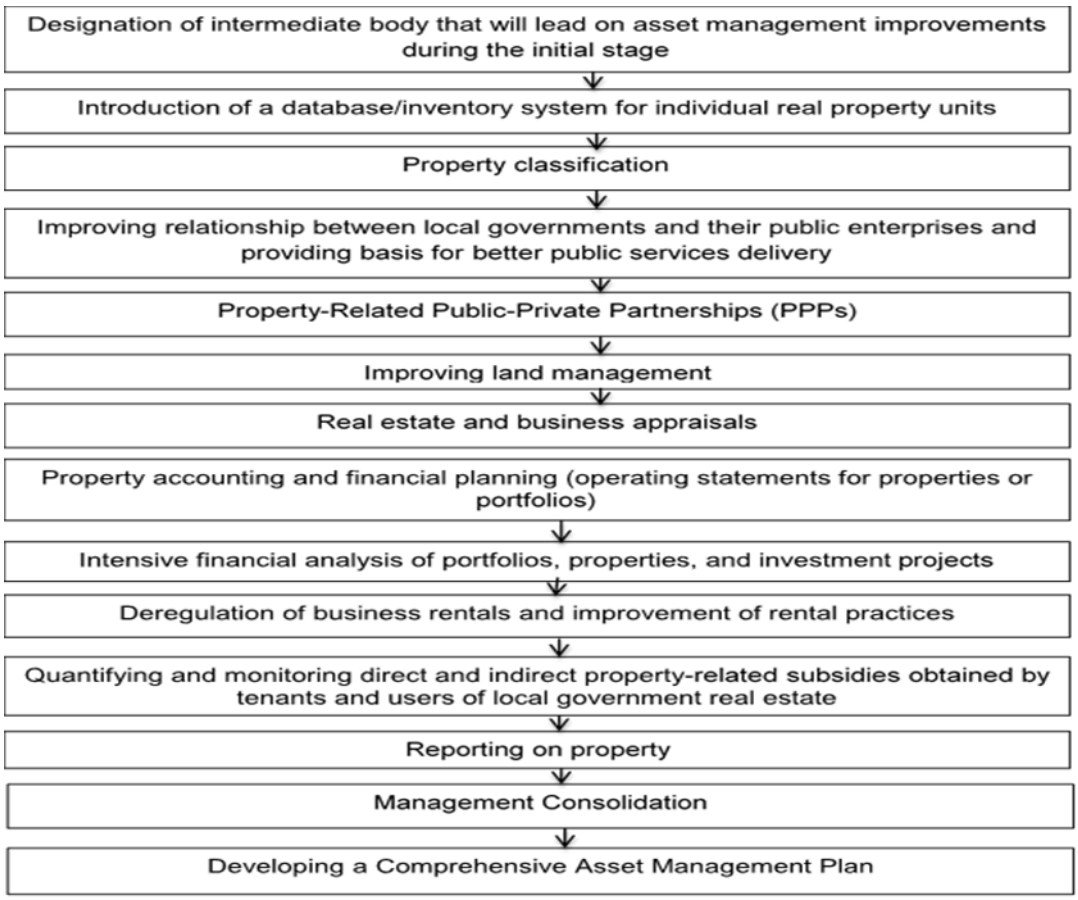

Figure 3: Activities for an effective asset management model Kaganova (2012, p. 10-72)

Adopting a comprehensive asset management framework does not happen overnight. An interim team should be constituted to lead and

coordinate various efforts and activities at the initial stages, and especially since asset management, functions usually are fragmented and performed by many departments and municipal enterprises (Kaganova, 2012). The team includes members from both public and private sectors such as real estate brokers, mayors, architects, engineers, heads of urban planning, members of city council, land development lawyers etc. Other activities such as creating an asset register and property classification should be followed initially (as shown in the flowchart above in **Figure 3**), until a comprehensive asset management plan has been developed.

Once the comprehensive plan has been established and approved, the NDPW should review it periodically to measure progress, assure its continued relevance, and update as necessary (Kaganova, 2012). South Africa has already begun the process of adopting a comprehensive asset management framework. A team of experts dedicated to achieving the seven-year turnaround strategy of optimizing the state-owned property portfolio has been established. It is an important step however; there is still a need to ensure that all the activities are carried out in a systematic way until a comprehensive system has been adopted. This project will identify some of the setbacks and recommend ways for eliminating them.

2.6 Benefits of Asset Management

ISO55000 (2016), describes the benefits of asset management as: risk reduction, opportunity identification or process improvement. It can provide a focal point for addressing the issues of functional integration of the organisation and life cycle planning. The benefits of asset management can create and improve organisational knowledge and decision making. Davis (2016) highlights **the importance asset management can help organisations:**

- Reduce the total costs of operating their assets
- Reduce the capital costs of investing in the asset base

- Improve the operating performance of their assets (reduce failures rates, increase availability, etc.)
- Reduce the potential health impact of operating the assets
- Reduce the safety risks of operating the assets
- Minimise the environmental impact of operating the assets
- Improve the regulatory performance of the organisation
- Maintain and improve the reputation of the organisation
- Reduce legal risks associated with operating the assets

An appropriate asset management framework that integrates both the strategic and operational property components can benefit the organization in many ways. Property assets have not been accorded the attention warranted for a variety of reasons. Reasons include a lack of policy direction and viewing property assets as non-liquid, and thus unable to contribute to annual financial or medium term political cycles of local government (Phelps, 2011).

Consequently, this has caused inefficiencies in the public works portfolio, and a lack of accountability by client departments. Furthermore, this has resulted in the underutilization of space and inadequate care of assets. In addition, to the above, some of the challenges faced are: severe backlogs in maintenance of existing assets; a lack of clear strategy for managing vacant land; bottlenecks and delays in the acquisition process; and a lack of adequately skilled personnel (DPW, 2016; Phelps, 2011). The above are some of the problems encountered if an organisation does not adopt a comprehensive property asset management system.

An effective asset management system can eradicate the above challenges and benefit the State in many ways. OGC (2003), states that the whole point of asset management is to ensure that the services provided by the public organization are done via the most effective and efficient way. Asset management has been reported to significantly

increase operational efficiency, financial accountability of asset purchases, simpler auditing and compliance, and long-term asset manageability and maintenance (Abdullah et al., 2012; Ngwira, 2015).

Ngwira (2015) postulates that the life cycle of an asset is prolonged through the implementation of an asset management framework. It makes it possible for all assets to continue to deliver the desired services in the long term. In addition, the associated benchmarking of condition and performance promotes innovation and efficiencies. Asset management provides a structured and programmed approach to long-term change, as well as improving governance and accountability with regard to its stewardship of property assets (Ngwira, 2015).

Other benefits of asset management framework are summarized on **Table 2.**

Table 2: Benefits of Asset management (NAMS, 2006; RICS, 2008; Worley, 2000; DCLG, 2008, Ngwira, 2015)

No.	Benefit
1	Enhances service management and customer satisfaction through: ▪ Improving performance and control of service delivery to the required standards; ▪ Improving understanding of service requirements and options; ▪ The process of formal consultation and agreement with users on the service levels
2	Improves risk management: ▪ Asset management processes and practices ensure that assets are assessed for the probability and consequences of failure and issues relating to continuity of service are addressed
3	Improves financial efficiency: ▪ By executing Optimized Decision Making (ODM) options are assessed for their financial viability based on whole life cycle cost and option appraisal of asset management life cycle activities
4	Improves Decision Making by applying Optimized Decision Making (ODM) by: ▪ Ensuring that decisions are based on evaluation of financial (costs) and non-financial costs and benefits of alternatives ▪ Enabling the prioritization of investments, interventions and asset care activities ▪ Making it easier to recognise all costs of creating, owning, maintaining, operating and disposing of assets over the lifecycle of the assets ▪ Ensuring that organisation has a lean, well maintained portfolio which allows it to live within its means
5	Can improve the economic well-being of an area by supporting and facilitating wider objectives, such as: ▪ Regeneration ▪ Assist with the introduction of new operating practices such as the potential to increase co-location, partnership working and sharing of knowledge ▪ Can trigger cultural organisational changes
6	Improved Environmental Asset Sustainability through: ▪ Reduced carbon emissions ▪ Reduced energy consumption
7	Improvements in the accessibility of functional services
8	Compliance with statutes and regulations.
9	Improves asset condition which can lead to the following benefits: ▪ Fit for purpose to deliver services ▪ Improve the current asset planning of the public asset register ▪ Aesthetically pleasing

2.7 Challenges in Asset Management

The execution of an asset management strategy requires a well thought through plan, since the fundamentals of asset management are basic. In a continuously increasing competitive global private sector environments caused by higher pressures on costs and tighter budgets by government, a new mentality is being developed.

Peterson (2012) suggests that fundamental changes in discipline and culture, beginning with the management team is required for improvement. The integration of the Top-Down and Bottom-Up (**Figure 4**) approach form part of the foundational building blocks for a successful plan. Having a common language and understanding of what asset management is within the organisation serves as a prerequisite for the organisation to achieve success in the implementation of the strategy.

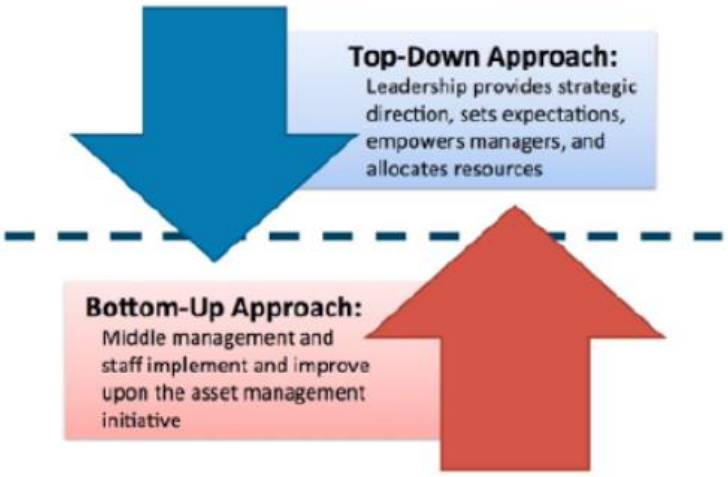

Figure 4: Top-Down and Bottom-Up Approach adopted from (Rose et al, 2012)

Markow & Rackosy (2001) suggests that a technical challenge experienced by an organisation is ensuring there is support and leadership throughout the planning and programme development of asset management implementation by senior management. A common flaw is

the manner in which the organisation is introduced to the improvement programme and how the process affects the current operating system. Repenning & Sterman (2001) **reinforces the idea, as the inability of most organisations to appreciate the benefits of an implementation strategy is due to the existing operations and less connected to the selected strategy**. The problem is interaction between the implemented improvement plan, assets, employees, and management.

Another practical challenge, common in public organisations, is a disconnect between management and implementation groups. Management is required to assess and recommend new improvement practices that involve the maintenance and operations staff for implementation. These programmes are difficult to sustain because the implementation groups are not engaged with the process and little or no knowledge of the aims and benefits of the implemented programme (Hodkiewicz & Pascual, 2006). Management involvement and leadership are crucial to create awareness and motivation amongst employees. It is important for managers to be committed and promote an understanding of asset management and the benefits of employee participation.

There are a number of advanced technologies and tools which organisations can use to improve performance. Software like: Buildium®, AppFolio Property Manager® and SiteLink® are a few affordable software packages that track and manage an organisation’s property. Managers no longer require extensive assistance in identifying and incorporating a new IT improvement system in their daily activities. The challenge presents itself with the successful implementation of these systems (Repenning & Stern, 2001). Most IT systems require continuous updating, eliminate jobs which are not favourable in the public space and have potential security breaches. An organisation is required to develop and implement an asset management framework from within an organisation and cannot buy an asset management system or use a computerised maintenance system.

It is important to establish a supportive shared organisational culture, because the success of an asset management strategy depends on the employees' knowledge and skills. The Asset Management Council of Australia (2011) defines this culture as follow: 'the extent to which all levels of the organisation have knowledge, skills and commitment of achieve the documented asset management goal of the organisation' (p.6). Organisational culture can be problematic as data may not be incorporated in planning, which in turn can assist taking action to improve organisational performance. In a study conducted by O'Hanlon (2014), it was found that asset managers cited organisational culture as the top challenge faced.

For effective asset management, an organisation is required to consider some financial implications. Cost plays a major role in the determination of a successful implementation strategy or programme. Organisations are concerned with the financial resources required for the implementation of asset management simply because it could require consultants to aid in the implementation process. Inadequate training of employees and regular management turnover are some of the challenges in the implementation process (O'Hanlon, 2014). Woodhouse (2014), **indicates that is becomes** difficult to create a consistent purpose when changing leaders bring about changing messages. The above factors play a critical role in the successful implementation of an asset management strategy.

2.8 The trends of Asset Management development

The conception of asset management **in its current format is somewhat unclear how it started.** Although researchers in this field are in agreement, it is not a new concept. The concept has been in existence for several decades in some or other form. Piling (2010) postulates that asset management as a concept has evolved over a number of decades from the inception of the industrial age. Throughout its development phase, asset management has incorporated other disciplines and techniques.

According to Piling (2010), the evolution of asset management is traced back to the early 1970s where it started with command and control approaches. However, towards the late 1970s organisations realized that an effective management of assets also involved incorporating an enterprise wide approach to the system. The enterprise approach looks at the entire asset portfolio and the interaction between asset systems. The integrative and entrepreneurial wide approach is presently understood to be associated with the asset management framework.

Other researchers such as Woodhouse (2010) suggest that asset management began in the oil industry in the late 1980s, where a system was required to create business units with clear lines of budget authority and performance accountability. The improvements that were made led to significant cost reduction and a management model, which is similar to the now termed asset management framework (Woodhouse, 2010). Edwards (2010) argues that asset management began in the rail and utility companies, where the primary goal was to increase efficiencies through higher levels of productivity and outsourcing of various services.

Regardless of the origins of asset management, its benefits are increasingly being appreciated by organisations in both private and public sectors. The beneficial effects are supported by Piling (2010), and he maintains that the integrative approach associated with asset management has contributed positively to operations and maintenance of the asset. Organisations currently experience asset management as a powerful tool to help add value to a business, rather than only a cost centre. Asset management brings about value addition to organisations because the concept applies an enterprise-wide approach through the whole life cycle of the asset.

Trends in asset management can be categorised as ‘top down imposed, bottom-up promoted and externally advocated’ (Phelps, 2011 p418). The

top down imposed asset management is characterized by the manner of implementation in Australia, New Zealand and United Kingdom where asset management is controlled by government policy. The bottom-up promoted group is epitomized by municipal institutions in USA whose asset management is driven initially by experts in the absence of a strong national policy steer (Phelps, 2011).

The externally advocated approach is typical in transition countries such as those of Eastern Europe where development agencies have been promoted as part of the reform process. It can be argued that central government initiated asset management is likely to be accountancy orientated with reporting standards requiring public bodies to show asset values and liabilities in their accounts which contrasts to the more property oriented approach in USA (Kaganova and Nayyar-stone, 2000).

Countries such as Australia, New Zealand and UK have implemented significant reforms in municipal property management. Similar policies and reforms, implemented in developed countries will work positively in South Africa, as the NDPW operates on a National, Provincial and Local (municipal) levels of government. However, countries in the transition stage such as Malaysia, have yet to make any real progress (Kaganova and McKellar, 2006; Abdullah et al., 2012). As a result, incomplete asset inventories and problems in asset management skills and capacity within local governments have been reported in transition countries (Beasley, 2004).

The differences in the asset management in developed countries and transition countries may be attributed to the differences in the quantum of property held, the legal basis of property ownerships, asset management capacity, and the adoption of best practices and cultural attitudes towards property as well as the inertia amongst local officials to embrace new ideas due to legacy within a state hierarchy (Phelps, 2011).

An explosion of new technologies is also becoming available for asset management for municipal officials. The technologies link financial and inventory records with internet portals and satellite based mapping. These systems are designed to provide valuable information for planning and strategic review processes as well as in the provision of services (Fernholz and Fernholz, 2007).

An example of the integrated asset management software is one known as ‘DataStream software and services®’ which has been successfully applied by 1200 local authorities in the United States (Fernholz and Fernholz, 2007). It combines asset management, customer relationship management, and geographic information systems (GIS) to help achieve its goal of providing quality services. There are many other examples where innovations and new technological applications are helping city governments in the whole process of asset management.

For developing countries, costs of efficient technologies are also being reduced for mapping, data gathering, and analysis of flows of people and transactions that, with the corresponding safeguards for privacy of information, can be very useful for public officials in charge of asset management (Fernholz and Fernholz, 2007). As technological improvements continue, the use of advanced software and incorporating green technologies may also play a vital role in improving the overall asset management system.

2.9 Chapter summary

A need has arisen requiring the DPW to provide state-owned accommodation to end-users. However, due to current challenges such as mismanagement of existing property, fraud and corruption, there has been a decrease in organisational efficiency (PMTE, 2017). It has resulted in financial losses, which could have been used to further the progress of the department. There is economic opportunities tied up in operational

property assets and improvements in the management of these assets could have a real impact on the financial outcome. Therefore, it has become apparent that the DPW needs an effective asset management framework to realize maximum financial benefits from its property portfolio.

This chapter reviewed and critically evaluated the current management practice of the DPW. This was done in order to assess whether the steps and approaches undertaken by the DPW are in line with the efforts to adopt the comprehensive property asset management system. Some of the challenges in the DPW turnaround strategy were discussed. A review of asset management was also undertaken, and it is described as a system, which integrates the strategic and operational components to increase efficiency.

The benefits and challenges associated with asset management were discussed in industry. Asset management has been successfully adopted by developed counties such as the United Kingdom and the United States, and has resulted in increased operational and financial efficiencies. The implementation of a similar system by the NDPW can have the same beneficial impacts. Finally, a review of the current trends indicates that asset management system is a viable management system which will remain for many decades to come. Incorporating the state-of-the-art software can lead to great improvements to the system.

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology adopted for the study. Research methodology can be described as a science of studying the manner in which research is undertaken to identify and solve the research problem. The chapter describes: research design; research approach; data collection methods utilised; data analysis and the evaluation of collected data. The section provides details on the reliability and validity of the study. Thereafter the ethical steps that was undertaken in the study is outlined.

3.2 Research Design

The researcher's primary approach was utilising a case study design. Case studies are used in many different areas of management research including strategy, information systems, and organizational change, reflecting the versatility of the design. The ability to investigate cases in depth and to utilise multiple sources of evidence makes them a useful tool for descriptive research studies. The focus of case studies is on a specific situation or context where generalisability is less important. It seeks to answers, 'how' and 'why' questions, however, case study research comes into its own, for both theory building and theory testing (Yin 2009). In explanatory research, for instance, case studies offer the possibility of investigating causal mechanisms and the specific contexts in which they are activated (George and Bennet 2005).

The researcher has selected case study design because a particular phenomenon, which is asset management within the National Department of Public Works was identified the focus of the study. The detailed qualitative accounts often produced in case studies not only help to explore or describe the data in real-life environment, but also help to

explain the complexities of real life situations. The current state in the Department cannot be captured through experimental or survey research. A case study of reading strategies used by an individual subject, for instance, can give access to not only the numerical information concerning the strategies used, but also the reasons for strategy use, and how the strategies are used in relation to other strategies.

Yin (2011) postulates three types of arguments on limitations against case study research. First, Yin (2011, p 21) postulates case study researchers on numerous occasions becomes careless and it results in propagating a biased viewpoint which influence the results and assumptions of a study. Secondly, case studies provide very little basis for scientific generalization since they use a small number of subjects, some conducted with only one subject. Thirdly, case studies are labelled as being too long, difficult to conduct and producing a massive amount of documentation (Yin, 2011). A common criticism of case study method is its dependency on a single case exploration making it difficult to reach a generalizing conclusion (Tellis, 1997). Yin (2009) considered case methodology infinitesimal because of the limited sampling cases.

This study pursues the establishment of challenges and possible opportunities available to the NDPW on the adoption of an asset management framework by:

- Review the current property management system.
- Assessing employees' perception and understanding of Asset Management and its associated benefits.
- Identifying the possible opportunities and challenges offered in the NDPW turnaround strategy.

3.3 Research Approach

A research design is the logic linking data collected and the conclusions drawn to the initial research questions of a study. Another way of viewing a research design is to view it as an action plan for moving from the questions to conclusions. It should ensure there is a clear distinction of objectives achievable through the utilisation of case study research. It involves defining the basic components of the investigation, such as research questions and propositions, appreciating how validity and reliability is established, and selecting a case study design.

The design of the study is structured in a logical way as postulated by Yin (2009) as a case study protocol. The research approach that followed in the study is as follows: Planning the case study, preparing to collect valid information for the study, collect case study evidence, analyse evidence and reporting the results (Yin, 2009).

Yin (2011) further outlines the components for designing a research:

- the study's question: this has been described in Chapter 1 of this research;
- the studies proposition: the study does not define any hypotheses in the study as the researcher aims to identify possible opportunities and challengers within the asset management approach by NDPW;
- units of analysis: the researcher has chosen the NDPW as the primary unit of analysis by receiving consent and having access to the case site and all necessary information/data;
- logic exists linking the data to the proposition and the interpretation of the findings: the actual analysis will require the researcher to combine documented evidence, interviews and observations and reflect these on what was highlighted in the literature review.

3.4 Data Collection

The execution of a good case study depends upon the competence of the researcher. It means that the researcher undertaking data collection needs to be able to ask good questions, to listen and to interpret the answers. It involves having a sound grasp of the questions and propositions of the case study, and being able to approach the study in an unbiased and flexible manner.

Due to the opportunity that presented itself, the researcher expected to use various methods of sourcing data. A summary of data used:

1. Documented evidence: according to the Public Information Act (PIA 2000), all government information is available for use to the public. The captured turnaround strategy and the annual performance plans of PMTE interpreted by the researcher, isolating elements associated with asset management.
2. The researcher conducted semi-structured interviews within three levels of the organisational structure. Fifteen interviews/sessions durations ranging from 15-30 min conducted with executive/senior management (2), middle management (4) and levels 1-10 (9) in the DPW organisation structure (total of 15 interviews).
3. Participant observations: the researcher has been an employee at the NDPW for five years, working in one of the entities whereby strategic change to asset management is undergoing. The researcher has worked closely with an executive member in the asset management strategy. To reduce bias, the researcher has ensured that the data collected and findings are ethical.

3.5 Gathering evidence

Typically, case studies draw on multiple sources of evidence. These include documents, archival records, interviews, direct observation, and

participant observation. Each of the different sources requires different approaches to their interrogation, and is likely to yield different kinds of insights. Each source has its strengths and its weaknesses, and the richness of the case study evidence base derives largely from this multi-facetted perspective yielded by using different sources of evidence. A qualitative approach describes the collection of data as the most appropriate choice for the study. The researcher had direct contact with the employees at the NDPW.

3.5.1 Documented evidence

Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic (Bowen, 2009). The researcher utilised documents relevant to the case study. The information consisted of relevant documents utilised during the implementation of asset management at NDPW and subsequent documents that pertained to asset management. Analysing documents incorporates coding content into themes similar to how focus group or interview transcripts are analysed (Bowen, 2009). The selection of documents complied with criteria set out by the researcher whereby the credibility of each document was scrutinised.

The researcher reviewed a large number of textual documents. However, Bowen (2009) suggests that a wide array of documents is better, although the question should be more about the quality of the documents rather than the quantity. Before selecting the textual documents, O'Leary (2014), outline an 8-step (**Table 3**) planning process that was taken to implement document analysis:

Table 3: Document Selection Process (Researcher)

Steps for Textual Analysis		Implementation Process in Study
1	Create a list of texts to explore	Two primary types of documents reviewed: • Public Records: Documents, which the Public information Act approves. The documents include the official, on-going records of an organization's public statement (3 documents), annual reports (4 documents), policy manuals (2 documents) and strategic plans (2 documents). • Personal Documents: First-person accounts the researchers actions and involvements (participant observation notes). The documents include e-mails, meeting reports (4 documents), steering committee meeting minutes and progress reports (4 documents).
2	Consider how texts will be assessed	The documents were reviewed in terms of the following: • Texts were looked at in chronological order • The credibility of the document • Style, tone, facts and opinions that exists in the document. • The original purpose of the document. Was the author of the document a first-hand witness or was there second-hand sources used in the data.
3	Acknowledge and address biases	Corroborating findings across data sets (from the semi-structured interviews and participant observation) was used to reduce the impact of potential bias. By examining information collected through different methods not only reduced biasness but validated the

		content.
4	Develop appropriate skills for research	During the proposal stage of the research, the author attended a research proposal seminar on the formulation of the research. Additional desktop research was used on how to conduct research.
5	Consider strategies for ensuring credibility	The above documents offered trustworthy data, as they were official (signed) and semi-official (unsigned) received from members of Executive / Senior Management team, key participants involved in asset management implementation.
6	Known the data one is searching for	The documents were assessed in terms of the research objectives. Documents which presented the current property operations, employees understanding of asset management and the opportunities and weaknesses within PMTE asset management strategy were collected and analysed.
7	Consider ethical issues	Official documents utilised were under the Public Information Act. Other sources of documents gained approval from the NDPW. Whereas, personnel documents respected the authors confidentiality
8	Have a backup plan	The research does not rely on one method of data collection and analysis.

The majority of the case site information was saved on a local network drive where documents were available for access. Hard copies of quarterly and annual reports were available in the company library. The researcher collected these documents such as meeting minutes, agendas,

correspondence between key participants, financial and technical reports in large amounts of electronic files.

Content analysis was utilised in the study whereby the researcher determined what is being searched for in the documents, the frequency and the amount of occurrences within the document. The information was then organised into what is related to the central research questions. Thematic analysis was considered as a form of pattern recognition with the documents under review. The coding and identification of themes was accomplished as follows: all selected documents were carefully read and emerging themes were identified.

Once the above analysis is completed, a comparison of the current property management system is created to reinforce the understanding of the NDPW operations. Additionally a comparison is created by the researcher, using literature; Kaganova (2012) discusses five principal areas of asset management and an asset management model for Government entities in property management.

3.5.2 Semi-structured interviews

Several data collection methods exist in qualitative research. Consequently, interviews are among the appropriate and most commonly used instruments (Kumar 2005; Nohl 2009). There are two views that exist when conducting interviews, on one hand the interviewer can ask freely any questions surrounding the research topic, whereas on the other hand, the interviewer can formulate question before and adhere to it strictly. Kumar (2005) notes this flexible and inflexible nature of interviews. While phone interviews allow for a great flexibility in scheduling the different conversations, a drawback of this technique is that the researcher cannot get in direct contact with the participants. Creswell (p216) noted it causes “limited communication that may affect the researcher's ability to

understand the interviewee's perceptions of the phenomenon" (Creswell 2009).

Researchers frequently utilise semi-structured interviews, because of their non-standardized nature in qualitative analysis. Interviews are an important data collection tool for any case study. The advantage of interviews is the researcher gets an exclusive view of the study topic and provides interpretations of the participants involved in the context of the research. The interviewer does not do the research to test a specific hypothesis (David, & Sutton, 2004). The researcher has a list of key themes, issues, and questions to be covered. In this type of interview, the order of the questions changes depending on the direction of the interview. An interview guide must be utilised, where additional questions to elucidate the topic is asked.

The interview questions consisted of a prepared set of open ended and closed ended questions. Opened ended questions allows an interviewee to give a free form answer, whereas a closed ended question can be answered "yes" or "no" (Farrel, 2016). A mix of open ended and closed ended questions allowed the interviewees to expand on their answers and give a full account of evidence to support particular viewpoints.

The research is a case study design and a common limitation is the generalisation of results. The variation of mixed questions lead to greater validity ensuring no gaps in the data collected. Moreover, pre-existing assumptions from the researcher were less likely to occur. The data collected involved the evaluation and triangulation of the research data by using quantitative information, where applicable, from the questions. Integrating the qualitative and quantitative data enhanced the collection and analysis of this single case study.

An initial list of questions (Appendix 2, Section 9.1, **Table 12**) was developed for the semi-structured interviews and can be described as a

preliminary or pilot set of questions. The initial interviews involved three participants. Upon analysis, the lists of questions were refined due to the saturation level of answers furnished by the participants and for the researcher to find meaningful data. Thereafter the researcher developed a new set of expanded questions, which was posed to the remaining 12 participants (Appendix 2, Section 9.1, **Table 13**).

The interviews were conducted from September 2017 to October 2017. All interviews were conducted in the offices of all the participants at the NDPW in Pretoria. It was estimated that the interviews would take approximately 10 to 15 minutes to conduct. However, it became clear after the initial set of questions that sessions must be extended. Each session was approximately 20 to 30 minutes because participants provided detailed responses. With the exception of three participants all other interviewees declined to be recorded. The interviews were transcribed by the researcher and hand written for participants that did not want to be audio recorded.

The interview transcripts are excluded from the dissertation due to the large volume of text generated. Each transcript took approximately 45 minutes to transcribe, but it was worthwhile as the researcher gained a deeper insight into the gathered data. The interviews were also used to gain an understanding of the documented sources used on the execution of previous and current property management methods. The data collected from the interviews were used to confirm documented sources.

The research method adopted in the study is qualitative in nature. Content data analysis was utilised for the study. Content analysis is the interpretation of the content of text through the systematic classification process of coding and identifying themes or patterns (Hsieh & Shannon, 2005). The data collected was interpreted and reduced to make sense in attempt to identify key themes. The researcher went through all questions

and answers from the transcribed interviews in an attempt to identify emerging themes.

The researcher had used the process of coding themes outlined by Nwanna (2006):

The first step was open coding, where the process of reading and rereading the data was done in order to find patterns that could be clustered and coded together. De Vos (2005) defines open coding as identifying patterns, breaking them down into discreet parts, examining the meaning, comparing for similarities and differences and questioning the phenomena that are reflected in them. Throughout the study the researcher goes along and highlighting themes or patterns.

The second step was to look for links and connections/correlations between the themes so that related themes could merge into clusters. In accordance to this the researcher identified participants' narratives that were similar.

Selective coding was the final step in the process whereby all themes, from all participant themes were divided into a selected numbers. De Vos (2005, p 338) states that once this in completed the process of "families" of themes is created where, the selected data is "reduced into small, manageable set of themes". The process involves the creation of sub-themes being "children" and "grandchildren".

3.5.3 Participant Observations

Participant observation may be done individually, in pairs, and in teams – whichever arrangement is most appropriate for covering the locations and topics at issue. Whyte (1979) suggests that the relationship between the researcher and informants as collaborative researchers who, through building solid relationships, improve the research process and improve the

skills of the researcher to conduct research. Conducting observations involves a variety of activities and considerations for the researcher, which include ethics, establishing rapport, selecting key informants, the processes for conducting observations, deciding what and when to observe, keeping field notes, and writing up one's findings. In this section, these aspects of the research activities are discussed in more detail.

The following protocol was created and used for the study: a list of question was created and observations were written as a source of data. The following questions were used in the participant observation:

- What is the current property management system?
- What are the employees understanding of asset management?
- What are the opportunities in the PMTE strategy?
- What are the weaknesses in the PMTE strategy

The researcher was able to engage with certain individuals for this study and sampled whoever was willing to engage in information relating to the case study topic. The researcher had attended meetings with key participants and allowed to sit in meetings with the planning unit within the asset management framework. The role of the researcher was to observe individuals, activities, communication and processes. To minimise the potential of the researcher being biased, the researcher has performed informal interviews with participants to collect data.

3.6 Data Analysis

The researcher collected data from interviews, documents and also through observations to validate findings. The researcher used qualitative content analysis method to analyse the data. This allowed the researcher to develop themes and categories to emerge from the data and carefully examined and compared emerging themes.

Thematic analysis can be used to make sense of seemingly unrelated material. It can be used to analyse qualitative information and to systematically gain knowledge. It is applied during problem framing; thematic analysis helps researchers move from a broad reading of the data toward discovering patterns and framing a specific research question.

Researchers use thematic analysis as a means to gain insight and knowledge from data gathered. It is highly inductive: themes emerge from the data that is gathered and are not imposed or predetermined by the researcher. The researcher tried a set of predefined codes for his study and most of the codes were not applicable, as the codes were emerging from the interviews data.

Content analysis was used as a research tool to determine the presence of certain words or concepts within texts or sets of texts. To conduct a content analysis on any such text, the text is coded, or broken down, into manageable categories on a variety of levels, word sense, phrase, sentence, or themes. Once themes were identified from each method of data collection, the researcher triangulated and analysed themes to formulate conclusions.

3.7 Generalisation, Reliability and Validity

These three concepts establish the basis on which other researchers should regard a piece of research as knowledge that can be assimilated into the knowledge base of a field of study. It is therefore important to demonstrate that these issues have been fully considered.

Generalization of the case study is important so that it contributes to the existing theory. Generalization can only be performed if the case study design has been appropriately informed by theory, and can therefore be seen to add to the established theory. The greater the number of case studies that show replication the greater the rigor with which a theory has

been established. The researcher has used multiple sources of data and evaluates the data in terms of the objectives and aim of the study.

Accounting for validity and reliability in qualitative research projects looks quite different from quantitative projects. Reliability is an examination of the stability or consistency of responses. To increase the consistency and reliability of a project, document all procedures, and if possible set up a detailed protocol. Other reliability procedures include (Creswell 2009):

- Check transcripts for obvious mistakes
- Make sure there is no drift in definitions of codes or applications of them during the coding process.
- If working with a team coordinate and document communication from meetings.
- Cross-check codes with different researchers by comparing results that are independently derived.
- Qualitative validity is based on determining if the findings are accurate from the standpoint of the researcher, the participant or the readers (Creswell 2009).

The researcher checked for the accuracy of the findings by employing a combination of multiple validity strategies: triangulation; member checking; clarifying researcher bias; spending prolonged time in the field; using peer debriefing and using an external auditor. The reliability of the data use were collected mostly from senior management especially those who were involved in the implementation phase of asset management.

3.8 Ethical Steps

In conducting interviews, ethical issues are one of the main concerns. Before an interview was conducted participants confidentiality was maintained and upheld by signing a consent form (Appendix 1, Section 8.2) Respondents “should not be harmed or damaged in any way by the

research … It is also important that interviews are not used as a devious means of selling something to the respondent" (Gray, 2004, p235). If respondents are uneasy and become upset, the interview can be cancelled or postponed. The following is a list (**Table 4**) of some of the issues and suggested ethical solutions (Patton, 2000 and Gray, 2004), that were maintained in the study:

Table 4: Ethical Steps

Ethical Solutions
Explain purpose. The purpose of the inquiry was informed by the participant sheet to the respondent.
Promises and reciprocity. Respondents are informed their positive gain from conducting the interview.
Risk assessment. The interviewer had considered ways the interview might put the respondent at risk in terms of stress, legal liabilities, ostracism or political repercussion.
Confidentiality. Confidentiality means you know but will not tell.
Inform consent. Participants will sign a letter of consent before the interview.
Data access and ownership. An evaluation is discussed to the participants on who has the right to access data and for what purpose.
Mental health. The interviewer and interviewees' mental health is considered and how it may be affected by conducting the interview.
Advice. An adviser will be contacted, if necessary, on ethical matters during the course of the study.
Data collection boundaries. The interviewer has considered, how hard will interviewee is push for data and what are the limitations during?
Uncomfortable questions. The interviewer will determine the extent at which the interviewees' questions are asked, when there is any discomfort shown.

4. PRESENTATION OF RESULTS AND ANALYSIS OF FINDINGS

The chapter reports the findings of this study based upon the methodology used in the previous chapter to collect information. The data analysis presented in the study will initially use documented sources, analysis from the semi-structure interviews conducted and participant observation.

4.1 Introduction

As a rule it is undesirable to manage property without taking into consideration the value added to the property, in terms of asset lifecycle planning. By practicing good property management the life span and survival of a building can be extended, such that the building maintains its' continued purpose. Similarly, the preservation of the buildings value would be fitting if the property is managed by competent personnel. The review of chapters two has revealed that government entities tasked with property management, generally, are not practicing the recommended modern methods of property management and the problem exists in the current asset management reactive approach (Kaganova and McKellar, 2006).

The current management operation of property assets in the NDPW is principally described in the study and relies largely on documentary data sources. Consequently, data collected from the interviews and participant observations is primarily utilised to answer the research question and objectives. The data received on the asset management strategy used by NDPW is qualitative by nature. Similarly, data extracted from the transcribed works is typically used more qualitative than quantitative.

4.2 Data Analysis and Results

The section presents the data analysed from documented sources, semi-structured interviews as well as participant observations.

4.2.1 Case Study Organisation: Current State

The following analysis describes and reviews data, from archived documentation and implementation plans of asset management systems in the NDPW. The data provided an insight into the financials, methodology, framework used and asset management strategies. The information provided a holistic understanding of asset management and allowed the researcher to identify asset management gaps in the current property management operations.

The documents used had a high level of credibility because they were officially available under the Public Access to Information Act (2013). The documented materials have records of work carried out prior to and initial phases of the asset management strategy. Additional sources included, minutes of meetings, committee meeting correspondence, internal memorandums and other reports. The initial documentation examination was undertaken in a chronological order (1997-2017).

Content and thematic analysis was used to identify emerging themes from the documented sources. The following is a list of emerging themes generated from all documented sources:

- Current property management
- PMTE Asset management
- Budgeting and Organisational structure
- Links to wider Government plans

The first two themes will only be discussed in study. These themes satisfy the main objectives outlined in the research. This section will **identify the current property management system** and provide **an understanding of the development of asset management strategy** and implementation leading up to the present study.

A conventional asset management framework would consist of two components: a strategic and operational component. From the analysis of documents the researcher was able to create the current property management process in **Figure 5** below. The **current operations in the NDPW do not include the strategic and operational components** found in an asset management framework. User Departments, through Key Account Managers (KAM) provide a Memorandum of Understanding with the NDPW for their accommodation requirements. KAM then submits a Planning Instruction to the Directorate of Project Management and the facilitation to provide the user department with accommodation proceeds. The approach from NDPW is a reactive one since there is no strategic planning (holistic) of the asset and no management plan to extend the asset life.

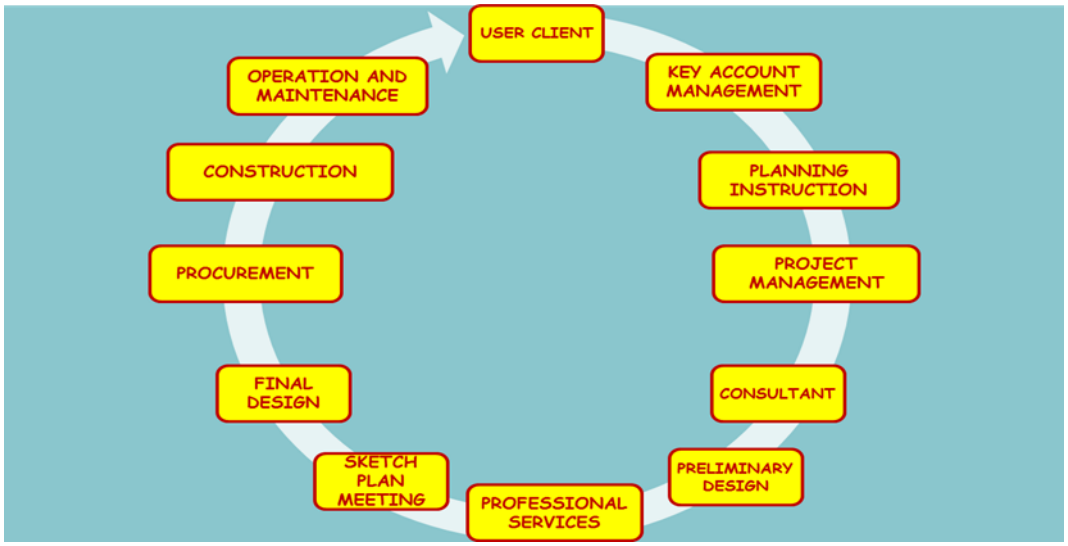

Figure 5: Current NDPW Operations (Researcher)

The period 1997 to 2011 is discussed in Chapter 2, where the process (of developing user charges) and engagement with NT was held and lead to the development of PMTE (in 2006). Unfortunately, NDPW did not fully comply with the directive from NT and underperformed. The failure was

mainly contributable to the NDPW inability to operationalize PMTE in line with the 2006 approval from NT.

The failure has led to a concerted effort by the current executive management and accounting officers to place measures which corrected the poor management of the past. In doing so, by the end of 2011 the Minister of Public Works requested assistance from the Technical Assistance Unit (TAU) of NT to provide a rapid diagnostic exercise of the practices within the Department. The report by the TAU revealed problems of "misalignment and mismanagement" and pointed to the need for fundamental reorganisation for the core business of the Department to comply with its mandate (PMTE, 2016).

In 2012, the seven-year turnaround strategy was the NDPW's plan to rebuild the competency within Department and identify a range of strategic priorities over the short to medium term. The turnaround strategy plan covers the period 2012 to 2019, and consists of three phases (**Figure 6**):



Figure 6: PMTE Phases (Researcher)

The Stabilisation phase focused on immediate challenges and terminated in 2014. The phase created the potential for more fundamental change initially that would bring more efficiency gains through better practice and policy options (PMTE, 2015).

The "Efficiency Enhancement" phase is currently in operation and is expected to facilitate the following interventions (**Figure 7**) below:

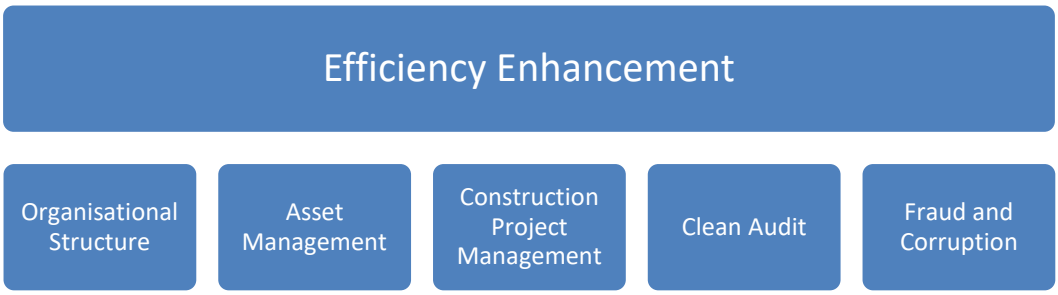

Figure 7: Efficiency Enhancement Phases (Researcher)

The asset management model for governments presented in Chapter two, by Kaganova (2012) shows key elements adopted from private sector practices to effectively and efficiently help governments manage their property assets. The model is based on international good practices which were generalized by experts from the Urban Institute and tested through projects in countries across Europe and Asia. The model is used in the research as a **benchmark**, in terms of asset management for governments. Complimentary studies using this model are seen in Croatia, Serbia and Poland (Kaganova, 2012).

The application of the model (Kaganova, 2012) can be combined into five principal areas which is required before implementation. These five areas were assessed and compared to the PMTE model (**Table 5** below)

Table 5: Comparing the five principal areas of asset management to the PMTE model (Researcher)

Principal Areas	PMTE Model
Classify properties according to their relation to local government functions	Yes. The current properties are rated from 1-5 from poor to good condition.
Build a property database	Yes. An asset registry is completed.
Create a department dedicated to asset management	No. The model does not incorporate a central department and individuals in a department accountable for the asset management process.
Formulate a strategic role for real estate in attaining municipal goals	Yes. The PMTE model is linked to broader municipal objectives.
Implement portfolio management practices	Yes and No. The monitoring and performance assessment is integrated into the model. However, each user clients portfolio is not assessed, only current accommodation needs.

From collected data, the researcher created a comparison to the conventional model (Chapter 2, **Figure 3**) and a checklist was compiled, depicted in below to determine whether a similar system with asset management objectives have been adopted.

Table 6: Comparison to an asset management model for governments (Researcher)

Kaganova Model (Activities)	PMTE Model
Designation of intermediate body that will lead on asset management improvements during the initial stages	Yes. An internal unit in the NDPW and TAU were set up to engage in the asset management plan. These further included MinTop and Exco Committees.
Introduction of a database/inventory system for individual real property units	Yes. In the Real Estate Registry Service, an Asset registry was set up for all property assets.
Property classifications	Yes. Properties were listed in terms of conditions. A rating system ranging from 1-5.
Improving relationship between stakeholders for providing better service delivery	Yes. User demand was initiatives and documents were created for User Departments.
Property-Related Public-Private Partnerships (PPP)	No. The business process below does not allow for any PPP opportunities.
Improving Land Management	Yes. Integrated planning with all the assets are in the model.
Real estate and Business appraisals	Yes and No. Acquiring of property to accommodate user demand exists, however business opportunities are not included.
Property accounting and financial planning	Yes and No. Investment returns are reviewed, however a fully financial analysis on investment or capex is not formalised.
Intensive financial analysis of portfolios, properties and investment projects	No. The model reviews each user client per demand and not overviews the whole portfolio from the user.
Deregulation of Business rentals and improvement of rental practices	Yes. Letting out additional space provides for additional revenue.
Quantifying and monitoring direct and indirect property-related subsidies obtained by tenants and users	Yes. This is done in the planning and execution stage of the model.
Reporting on property	Yes. At every stage.
Management consolidation	Yes and No. During the planning stages management are involved, however during the execution stage there is no monitoring by the initial stakeholders.
Developing a comprehensive asset management plan	No. A document prepared for each asset from inception to disposal is not created.

Figure 12 and **Figure 13** (Appendix 3) represent a strategic asset management framework PMTE proposes to initiate during the turnaround strategy by NDPW. The PMTE model is that similarly implemented with a

“Top down” (Section 2.8), whereby government policy is to set the mandate.

4.2.2 Analysis of Semi-Structured Interviews

The researcher utilised semi-structured interviews to gather information on employees’ perceptions on asset management and management of property in NDPW. Participant information was considered confidential (this included basic biographical information such as: name, age, qualification, position in the organisation etc.). What was considered vital was collecting participant experience and opinions relating to the current property management in DPW, employees understanding of asset management and whether there are opportunities or challenges in implementing PMTE.

The coding and identification of themes were undertaken in a manner where, content and thematic analysis can be performed, as outlined in Chapter 3. Fifteen transcripts were vetted thoroughly using the same process of analysis which allowed comparisons to be grouped together. Similar nodes and themes were then created, whereby the researcher reduced the data from each interview. It was necessary to ensure the reduced data would make sense and conclusions were based on his / her understand to identify predominant themes.

The interview questions were categorised into the following headings related to the objectives of the research:

1. Current property management in NDPW and Asset Management in Local Departments
2. Employees’ Understanding of Asset Management
3. Training and skills transfer
4. Opportunities and Weaknesses

The following headings are discussed below in detail with the emerging theme. Examples of key phrases are shown under each heading to reinforce the aim of the research. Interview question are transcribed and all responses are captured into Microsoft excel. Collected quantitative data was calculated (Appendix 3, **Table 14**, **Table 15**, **Table 16**) and used as supporting data to the qualitative research. There were fifteen participants in the semi-structured interviews, however not all responses were used in the analysis. This is due to participants choosing not to respond to the question or because of saturation of the answer.

4.2.2.1 Current property management in NDPW

The section aims to determine whether participants at the NDPW had adequate knowledge and capabilities in the current property management system. In order to achieve it, the interviewees were asked about the current operations including: areas of concern in the current management system that require attention; suitability and enhancement of its operations; and adequacy in terms of implementing an asset management system. Lastly all the participants were questioned on the Asset Management practices in the public sector.

The emerging theme from the transcribed interview data indicated a **need for change** in the current operating system.

In terms of areas of concern in the current property management system, it was assessed in terms of interviewees' experience in relation to the integration of completing projects from concept to disposal. Participants' at all organisational levels indicated problems associated with the current operations. **Table 7** below highlights key phrases reinforcing the need for a change.

Table 7: Participant opinion on areas of concern in the current property management system

Participant	Key Phrases from Participants
1	*"The current system here at the Department is a bit slow. Things happen slowly. I don't think the current system has a good control of everything…"*
2	*"User client engagement and project implementation are two areas I think that need to be addressed"*
3	*"I think the first area that would need attention is the planning of the asset. Currently, it seems like we only plan for an asset when there is an immediate problem… another area would be budgeting, in some cases departments have no budget and DPW will assist with capex… so implementation gets delayed or implementation occurs and the project comes to a stop the next year due to insufficient funds"*
4	*"no proper facility management policies… there is no clear acquisition policy… disposal policy… all needs to be aligned with current legislation"*
6	*"Planning and feedback interaction... it's missing… the assets assessment in terms of capital plus operation as well as maintenance is not tested when motivating projects"*
7	*"the asset management system, in term of the strategy, is not clear… property management or asset management is poorly defined"*
8	*"I don't think there is a need for a complete revamp…I think there needs to be an enhancement of the current system… the ideas are there, the way investment analysis is set up, valuations, portfolio analysis research and PPM unit, PPD unit is al there, it needs enhancement and more synergies to be created to get better flow…also the quality of staff, you might have a system but it's not populated with the right staff…technically skilled"*
9	*"all areas need attention…there isn't a total well defined system… at the acquisition stage, we are operating in the property environment and property is acquired the same way as goods and services are acquired… "*

The outcomes suggested that in the NDPW participants at different corporate levels have different perspectives on whether there should be a change.

Transcribed data was used and coded into "yes" or "no" responses. **Figure 8** below presents 64% (9 out of 14 responses, 1 non response) of the participants are in support of a change to the system. This is supported by 60% (9 out of 15 responses) of the interviewees who are of the opinion

that by implementing an asset management system the NDPW will improve its service delivery to user clients

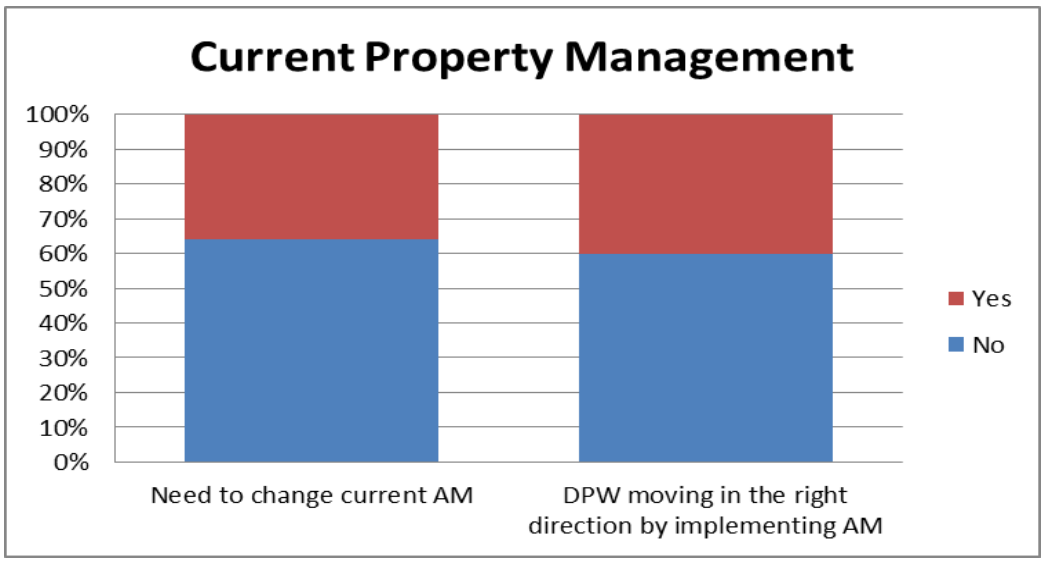

Figure 8: Current Property Management

Participant 2 acknowledges that “user client engagement” is required in the current system. Whereas, Participant 1, 4, 6 and 9 highlight the entire operation at NDPW needs to be revisited. From section 4.2.1 (documented sources), the current management system does not utilise property management plans. Participant 3 highlighted the fact, where the participant stated that “the first area that would need attention is planning of the asset”. Therefore, it can be concluded that the NDPW do not prepare property asset management plans. The absence of the linkage between a clear understanding of client needs, asset plan (acquisition/construction) and a strategic overview for the asset means that the NDPW does not meet asset management objectives.

The practice of asset management in the public sector is poor to non-existent and participants agree (**Table 7**). It is linked to the large leasing portfolio that the State has with the private sector. PMTE is a seven year (2012-2018) asset management strategy. The strategy was launched with

the intention of improving business (specifically property management). **Figure 9** below presents the additional sum of years participants believe the implementation process requires.

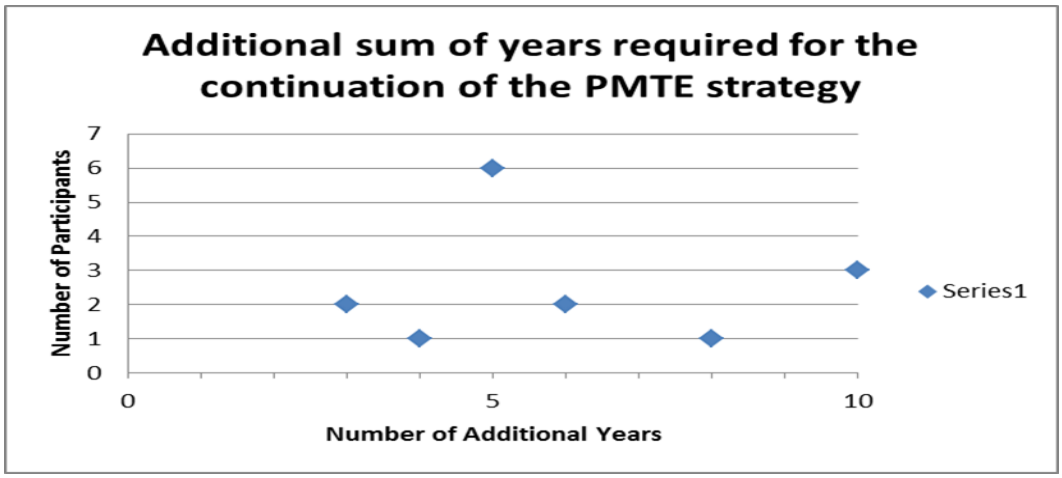

Figure 9: Additional sum of years required for the continuation of the PMTE strategy

Six participants (based on their experience) believe the strategy requires five (5) more years whilst three believe the implementation would require another ten (10) years. Eighty per cent (80% which represents 12 out of 15 responses) of interviewees are of the opinion that NDPW requires five (5) or more years, while none of the participants believe that the initial seven year strategy is still on track.

It is supported by Participant 7, that "the asset management system, in term of the strategy, is not clear… property management or asset management is poorly defined". From the Annual Performance Plan representing the 2017/2018 financial year, indicates that the PMTE model is however faced with numerous challenges in realising targeted obligations and ambitions (PMTE, 2017). This resulting in the seven year strategy (2012-2019) remaining in the Efficiency Enhancement (mentioned in 4.2.1, **Figure 7**) of the turnaround strategy. Thus extending the phase to

2018/2019 (PMTE, 2017) lapsing the original duration and not commencing the Sustainability and Growth phase (last phase).

Currently, the private sector has a strong competitive advantage and attractiveness in ensuring efficient service delivery of government infrastructure. In the PMTE (2016) strategic plan, approximately 55% of accommodation by government departments is leased accommodation by the private sector. The remaining question is whether the participants would deem it appropriate for the assets of the State to be commercialised. **Table 8:** Advantages and Disadvantages of commercialising government property assets (below) represents the mixed opinions of the interviewees where interviewees expressed their viewpoints regarding the advantages and disadvantages of incorporating the private sector with government.

Table 8: Advantages and Disadvantages of commercialising government property assets

Advantages	Disadvantages
"If the private sector manages property I think things will get done" – P1	*"But I think they would cost high prices… do proper audits and there could be large gaps for corruption to happen" – P1*
	"I'm personally against that, the State has many employees, and initiating that makes its employees redundant and dependant on the private sector" – P2
"proper implementation… no liability by the State… quick and reliable delivery" – P3	*"NDPW cannot manage the private sector firms because of insufficient knowledge on the topic" – P3*
"…they are people that are more skilled, they have an understanding of the market, they know how to look at and have an understanding of how to manage an asset and also to assess the needs from a client…." – P4	*"…government will have an issue of confidentiality… the issue of market related rentals… private sector, you don't know what their interests are..." – P4*
"More effective pressure on performance… " – P6	*"there are core infrastructure developments that can only be done by government…" – P6*

"PMTE needs to be revenue drives and the private sector will look at how it can save you costs… more efficient in the way you are procuring properties…" – P7	*"if it's done by government you able to control your strategies, frameworks, policies…" – P7*
"minimum disruption to the departments core business" – P8	*"the risk of monopolisation, the risk of over pricing, which will eventually force that was happening having a lot of private sector leases" – P8*
"it can be done on time, you get happier clients service delivery should improve" – P9	*"if everything is given over to the private sector it will be abused…my opinion in terms of corruption is no done alone by officials in the department, it is a hand-in-hand thing done with the private sector... there has to be proper controls in place because the department may be billed for things that may not be done.." – P9*

4.2.2.2 Employees' Understanding of Asset Management

The researcher aimed at gathering and measuring all 15 participants understanding and knowledge of asset management. From conducting the semi-structured interviews the theme of **asset management is required in job description** was identified in the transcripts. The researcher has extracted and summarised in **Table 9** below participants' definition of asset management (6 participant answers were similar and were not included in the table). From the data, one can note that the responses and understanding from the participants are clearly different. Participant 3 understands that planning for an asset from "start to end' this is supported by Participant 9 by stating "managing an asset through its lifecycle". Participants 4 and 5 highlight the need for maintenance and facility operations as part of asset management. However Participants 1 and 6 have different points of view about asset management. The above definitions differ from those found in literature, where asset management maximises the value of property from acquisition to disposition (holistic approach).

Table 9: Summary of Participants understanding of Asset Management

Participant	Key Phrases from Participant
1	*"Asset management is about equipment, plant and the people working there. It's about the total things together"*
3	*"Asset management is like having a plan from the start to end of an object or asset. It's looking at it holistically"*
4	*"Assets are both immovable and movable… for buildings and land… you have to manage facilities and maintenance… planning and managing your asset"*
5	*"Asset management involves the value one obtains from ones' asset. Also managing assets so that you achieve a goal."*
6	*"I see asset management, including the registration, an inventory of your infrastructure, and an active management of the continued service level of what it was designed for… having an effective report system and logically using that information to improve maintenance operation and management."*
9	*"Asset management is basically managing an asset through its lifecycle, from the four parts of the lifecycle, acquisition, operate and maintain and disposal at the end"*

One of the key elements of implementing and maintaining an asset management system is there should be a competency requirement for personnel involved in asset management. This competency is mentioned in Chapter 2 of the study where the Australia asset management council (2011, p6) has cited that, "The success of an asset management strategy depends on the employees' knowledge and skills" and "organisational culture" as a top challenge faced.

The participants' understanding of asset management data was coded into "yes" and "no" (**Figure 10**) revealed a major discrepancy amongst all the participants in terms of their understanding (10 out of 15 participants – 66.67%, referring to the definition of asset management found in section 1.2.2, pg.14). However there is no definition from literature that defines

how interviewees have misconstrued their own definition of asset management. This could be one of the reasons why asset management fails in government because of the misunderstanding of asset management amongst employees. The most common interpretation of the interviewees is to maximise service delivery from an asset. With the participants having all different views, there is a disconnect between employees and the implementation group (senior management).

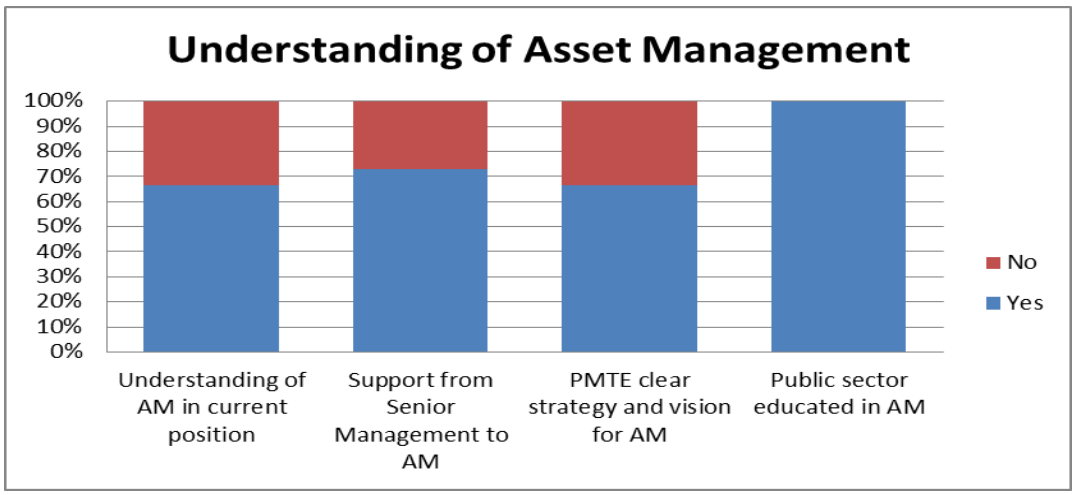

Figure 10: Understanding of Asset Management

The organisational employee levels interviewed (senior and middle and lower) need to improve their understanding of asset management in order to implement and improve asset management capability. From participant responses there exists a lack of integration and communication (**Figure 10**), which is not maintained by the implementation group (senior management). These individuals are not engaged with employees at all levels. This can be seen above as 73% (11 out the 15 participants) of employees believe there is minimal support from senior management. According to Rose et al (2012) in the Top-Down and Bottom-Up (section 2.7) approach, a common language and understanding is vital for the successful implementation of a strategy. 66.6% (10 out of 15 Participants) responded that the PMTE strategy in terms of asset management is clear

and 100% of the participants indicate that asset management knowledge is required in the Public sector.

4.2.2.3 Training and skills transfer

The interview data was collected and coded into “yes” or “no” responses. The findings in **Figure 11** reveal that most of the management level employees have not received or attended any form of training in terms of asset management.

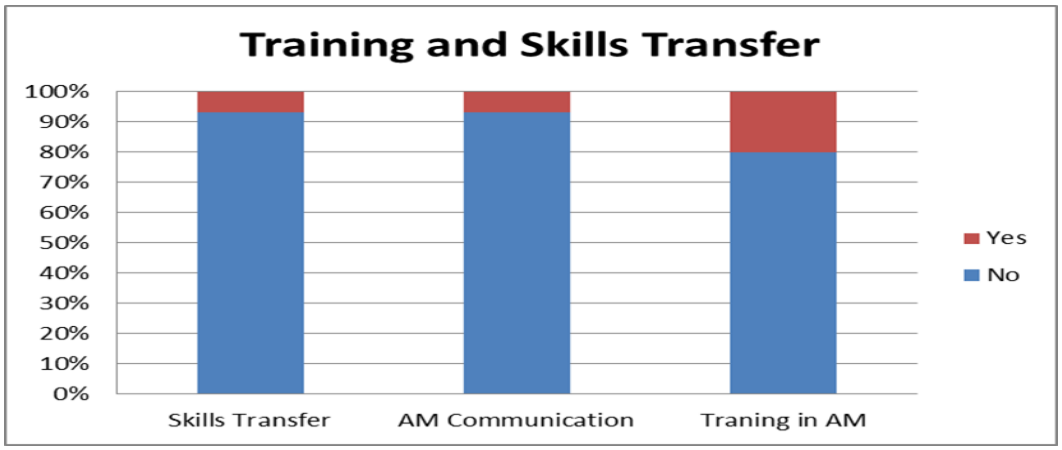

Figure 11: Training and Skills Transfer

This is supported from 13 out of 15 responses (93%) of the participants responding that they have not received any skill transfer in their position. 80% (12 out of 15 participants) emphasises that they did not receive any form of asset management training. Participants either attended training at their own initiation or were selected by senior management as part of the implementation team at NDPW’s head office. Members of staff at the regional offices have not attended any training in asset management. One of the participants mentioned that the NDPW had encouraged training of specific members of staff through the service provider the South African Property Owners Association (SAPOA) in terms of asset management.

Members of staff at the lower levels had only attended the mandatory training during the induction stage of their employment. This training was generic management training. None of the senior or middle management participants have received any formal training in terms of the ISO 55000 of asset management.

Participants' responses to questions on whether understanding asset management is important to perform their job were "Yes"; however most individuals have not received any training and 93% (13 out of the 15) have expressed the need for understanding asset management as it isn't communicated properly.

4.2.2.4 Opportunities and Weaknesses

The aim of the section was to assess whether participants could identify any opportunities and weaknesses arising by implementing an asset management framework. In order to realise this aim, interviewees were asked if there are any foreseeable opportunities or weaknesses and whether NDPW had planned or unlocked any potential opportunities. The emerging themes for opportunities were: **improved planning and service delivery**, whereas the theme for weaknesses were: **leadership, training and change in current duties**.

The data collected from participants on opportunities and weaknesses varied significantly. The key phrases are highlighted in (**Table 10**).

Participants 1 and 3 mention opportunities such as, "improve time management" and "quicker implementation". Participants 2 and 6 comment on "additional income" and cost effectiveness" as opportunities.

Some of the weaknesses identified by Participants 3 and 4 were, "change in management" and "change in leadership". Participants 2 and 6 identified

a possible weakness as “whether everyone embraces the strategy” and “training people in the new way of doing things”.

Participant responses focused on external forces such as: economic, social, political, and legal. From the collected responses there were minimal opinions regarding the negative aspects of implementing an asset management framework. The most common responses were on the effective implementation of the PMTE strategy and whether the right people are in the right place. **Table 10** below presents a list of opportunities and weaknesses:

Table 10: Participant responses on opportunities and weaknesses of PMTE

Opportunities	Weaknesses
"…improve time management and communicate or plan properly" – P1	*"challenges would be whether politics will get involved and if the strategy works and doesn't become wasteful." – P1*
"…in additional income into the state and save our budget from Treasury. We would be more effective if upfront planning is done and not reactive." – P2	*"…be more organisational. I think some units may merge together whilst others would move away. And whether everyone embraces the strategy." – P2*
"quicker implementation, proper planning, no irregular spending and better service delivery" – P3	*"Continuous implementation from senior management, the right people in the right places and wasteful expenditure" – P3*
"it changes the way the department works... you trying to look at an asset and deal with all aspect of it…from your acquisition right down to your disposal and your management in between… if there is a clear alignment the strategy will work" – P4	*"… your change in management, your change in leadership, there is no continuity, since this took place, we had two heads of PMTE… and they all came in with their own ideas… to implement it is going to be a problem." – P4*
"cost effectiveness of government expenditure and enforced re-capacitation of the engineering capacity" – P6	-
"there are opportunities in this as there are a lot of assets that are not utilised and turn them around to generate income and make themselves sustainable… there are opportunities to improve the working conditions of the State… there's opportunity to improve our understanding of asset management, improve our systems that we have.." – P9	*".. basically people need to change the way they thinking from the State, Non-profit sort of perspective to a more, I wouldn't say profit base but to a wealth creation focus and looking on improving State assets.. reduce reliance on the National Treasury and fiscus… resistance and old way of thinking…training people in the new way of doing things… there are a lot of legacy issues, in terms of property…bureaucracy" – P9*

From the above evidence, it can be concluded that interviewees provided positive feedback on the opportunities that PMTE asset management strategy would have on service delivery. Similar opportunities coincide with the benefits listed in section 2.6 of the chapter. These include improved service delivery, financial efficiency and asset planning. The weaknesses highlighted focused on the implementation of the strategy and the organisational structure. Compared to the literature found in Chapter 2 (section 2.7) of the research, by Sterman (2001), it is a common challenge in public organisations.

4.2.3 Participant Observation Analysis

The researcher had access to the employees interviewed due to the fact the researcher is a full time employee of NDPW. The fundamental aspect, within the theory of participant observation, was the ability to achieve diverse perspectives between two parties during interaction. The perspectives were considered when reviewing the researcher's methods, validity and distinction between belief and opinion (Literature).

The method below was both structured and unstructured. It was structured in the sense whereby the above list was drawn up and notes were written down on a daily basis. It was unstructured where participant observations occurred by interacting with employees or unplanned meetings or walks around sites.

The researcher engaged with three levels within the organisation structure (levels 1 -10; middle management and senior management). These included ex-employees and current employees from maintenance / facility managers to the strategic leader in the transformation strategy. The personal interviews further included engineers, planners, investment analyst, strategists, actuarial scientist, project managers and key account managers (client interaction).

The findings for the study (covered in section 3.5.3) are presented in **Table 11** below.

Table 11: Participation Observation Results

Observation	Researchers Notes Included
What is the current property management system?	Not clear. Reactive then proactive. Does not include asset management principals
What are the employees understanding of asset management?	Level 1-10 – majority cannot define asset management (10 out of 12 people) Middle Management - majority cannot define asset management (4 out of 6 people). However, some can define asset management Senior Management – More cannot define asset management then can (3 out of 5 people).
What are the opportunities in the PMTE strategy?	Revenue creation, client satisfaction, improved links to other government mandates, improved service deliver
What are the weaknesses in the PMTE strategy?	Possible Corruption, Training, Experienced Employees, Continuous Budget , Policy making

Some of the worries identified foremost are the level of training in asset management required from senior management to individuals in levels 1-10. The required training is often hosted by service providers in the private sector with experience in government assets. Training in asset management is frequently advertised regularly by the South African Asset Management Association (SAAMA). From the discussions had in the interviews and observations, none of the senior and middle management employees have attended any form of training with regards to the International Standards Organizations specification ISO55000.

The researcher has noted that due to the large number of asset around the country it becomes difficult for regular inspections by facility managers. The enormity of the task has revealed the existence of a lack of communication between senior management and the lower levels. Generally, once a process is created, it is mostly likely that the rest of the team or organisational structure will follow suit and support the initiative (Ngwira, 2015). What was observed is that the implemented asset management process required a dedicated technical team (likely senior management) engaging with employees at lower levels. This would allow for quick implementation as the current reactive issues are required almost immediately.

The research noticed that some of the limitations were communication and reporting. There are some individuals that are effectively offering more proactive ideas in support of asset management however; they lack the credibility or authority to drive asset management systems. The researcher has noticed that a reactive culture is more predominant than a proactive one.

4.3 Triangulation of results

The findings from documented sources, semi-structured interviews and participant observation were used to identify any commonalities, gaps and differences.

The commonalities found in the results from documented sources have shown that the PMTE strategy is similar to the public asset management model from literature. Similar results were found on the opportunities and weaknesses between all three sources of methods of data analysed. There also were related findings between participant observations and findings from the interviews on employees' understanding of asset management.

The gaps identified firstly was insufficient evidence from document sources to determine whether employees 'understanding of asset management is in alignment with the semi-structured interviews and participant observation. Another gap was identified where documented results show that current management system does not utilise certain asset management principals in NDPW.

The differences in the findings from documented sources, shows differences in the PMTE asset management model to the public asset management model from literature. This is due to the PMTE model focusing and linking to other South African national plans, such as the NDP. There were differences in the findings of participant responses and participant observation on opportunities and weaknesses. Another difference identified from the results was that participants in the interviews did not fully understand the PMTE model and believed that it would take the model longer to implement whereas the document sources reveal that the strategy is on track

4.4 Summary

The aim of this chapter was to explore the factors that contribute to the analysis critical to this study. Achieving this aim was done by looking at these factors identified through the literature review in chapter 2. The data collection comprised of three sources: document, semi-structured interviews and participant observation. The qualitative data was analysed using content analysis, whereby all the findings were drawn into themes. The thematic areas addressed were identified and triangulated to reduce generalisation and increase validity.

5. DISCUSSION OF RESULTS

The research findings from Chapter 4 are discussed in this chapter. The initial discussion of the findings will be summarised followed by the findings placed in the context of the research. Thereafter validation and generalisation of the results are discussed.

5.1 Introduction

The appropriate research design to identify the challenges and opportunities faced when adopting a public asset management framework has been investigated. The researcher used content data analysis to identify the emerging themes. A summary of the findings and validation of results are presented below realising the aim of this study.

5.2 Summary of findings

The aim of the research was to identify the opportunities and weaknesses faced by the National Department of Public Works by adopting an asset management framework. The aim was supported by specific objectives intended to assess employees' perception and understanding of asset management; identify the possible opportunities and challenges offered in the National Department of Public Works strategy to a conventional asset management framework for public entities and describe the implemented asset management process adapted for local environment.

Literature suggests that asset management is integrative in its approach; this is supported by the finding in this study. An adaptable asset management framework, embedded with an asset management structure, supported by strong leadership, operating in an environment with asset management culture and effective performance management is the most appropriate for improving asset management in local authorities (Ngwira, 2015). Literature suggests that four factors are conducive to creating an

asset management environment. These include government authorities having in place appropriate asset management and organisational management structures, leadership and appropriate asset management culture in the organisation (Kaganova, 2012).

The National Department of Public Works was used as a case study in noting the opportunities and challenges faced by implementing the Property Management Trading Entity, the asset management arm of the organisation. The researcher used the case study method to answer the research question by, using three data collection methods: documentation, semi-structures interviews and participant observation.

5.3 Case Study Findings

The current property management operations in the National Department of Public Works have weakness and limitations to extract full value from its property assets. The approach to these property assets are reactive and fragmented relying on private leased accommodation solutions. The consequence is that there is a burden on the National Budget.

The document analysis revealed themes relating to the current operations and the PMTE asset management strategy. The current property management operations do not include strategic and operational components found in an asset management cycle. This is shown in **Figure 5** (page 56), as the planning stages of operations, maintenance and asset disposal, key components in an asset management process, is not found. This is supported by the data from the interviews and participant observation, where participants and the researcher observations emphasised the need for understanding asset management in the NDPW.

A comparison using the model created by Kaganova (2012), illustrated that the PMTE model satisfies largely all the categories for a public asset management framework. As shown in **Table 6** (page 57) the comparison

made to local government models are similar. The similarity can be described as a “Top down” approach, mentioned in literature however specific to South African conditions. Additionally, this is supported by all opinions from participants on implementing the PMTE strategy.

The findings from the semi-structured interviews and participant observation follow below. There is consensus amongst employees’, through different organisational levels, that the Departments current operational activities do not meet its current objectives. There is an acceptance to change the NDPW operations and become more proactive, as this will have a positive influence on the Departments service deliver and opportunity in extracting value from its assets. With this in mind, the creation of PMTE is supported amongst employees. The findings from the interviews indicate the PMTE strategy (planned to complete in 2019) will require an average of 5 years (in 2022) to succeed. From interviews the delay in the strategy is the implementation and leadership as senior management continuously change. Due to this, there are also mixed opinions on whether the NDPW should privatise the implementation and operation of asset management of State property.

One of the main objectives of the research was to determine employees’ perception and understanding of asset management. To enhance the essence of the report, the researcher decided to interview participants in the existing three organisational levels that are within DPW. These three levels would give a better perspective on employees’ understandings and realistic results to use in the report. The research report did not aim to assess the three levels critically but was to use the findings to support the research. There is a lack of understanding of asset management amongst employees at the National Department of Public Works. However, all participants agree that understanding of asset management principles is crucial to undertake their roles.

According to the literature reviewed, there is a competency requirement for personnel involved in asset management. One of the key findings is that there is a major disconnect amongst all the participants in terms of their understanding of asset management. Interviewees expressed the lack of communication and integration by the implementation team. There is also a lack of training provided for personnel of understanding and implementing asset management in their duties.

The technical committees are in support of the PMTE strategy, but there is a lack of support involving or consulting members in the organisation that would provide valuable knowledge with regard to asset management. Training has been provided of selected individuals, however in most cases asset management knowledge is required throughout to successfully implement the strategy.

The identified opportunities by participants presented by the PMTE asset management strategy offered are as follows: time management, additional income to the state reliance on National Treasury, improved asset planning, holistic asset planning and improve service delivery. Additionally this supported by the researcher's observation (from participants and documents) of revenue creation and other links to broader government mandates.

The major weakness with the PMTE strategy is mostly likely to be associated with the implementation of it. There is a political element where the head of PMTE and the Department have changed twice over the seven year strategy. This had impacted the strategy implementation negatively. This trend can be confirmed through literature where the PMTE strategy was recommended by the White paper (1997). Other challenges are potential resistance of employees to perform their duties in a different way and legacy issues.

5.4 Validity and Reliability

The process of validity concerns evaluation of external validity, internal validity and reliability throughout every step of the research methodology (Lucko and Rojas, 2010). Research that meets this criterion is valid and reliable.

In the current research external validity is the measure utilised to secure external validity or content. The sample size used in the research is adequately discussed in section 3.4 for qualitative analysis and in the context of this research. Robson (2011) describes generalisation as providing the reader with all the information required to understand the findings. The full account of this is provided in sections 2.5 and section 4.2 of the research. The validation of the theory on asset management in the public sectors was undertaken by the semi-structured interviews. The interviews utilised personnel in the public sector practising asset management at the NDPW. The research was strengthened through the use of multiple data sources and combining two approaches to the data analysis as discussed in Chapter 3 of the research.

Internal validity is achieved by removing the researchers' biases in the research process (Ngwira, 2015). In this research a number of precautionary measures were taken to improve the validity and reliability aspect of this study (section 3.8, Table 4). These tasks included the pilot research questions, the data coding and recording and the preparation for analysis (section 4.2.2). The use of mixed methods and multiple data sources made for reliable triangulation of results. The previous sections listed are clearly explained methodology of the research.

The above paragraphs reflect a summary of the methods used in the study as precautions to increase generalisation. In terms of validity the research sets out to achieve the initial objectives of the study. The research methods used in the study can be performed again under the same

conditions to generate the same findings, utilizing the above precautions. In the document analysis, the findings can be easily replicated. However, in the interviews and participant observation different opinions could affect the reliability and overall validity of the replication. The results in the study are primarily focused on the NDPW and cannot be replicated in the private sector space or property asset management entity. In terms of validity, similarities and comparisons can be drawn amongst other government departments or government organisation in South Africa and the study can be repeated with similar outcomes.

6. Conclusions and recommendations

The chapter summaries the presented research and evaluates it against the research objectives. The chapter discusses information from previous literature and the findings from data analysis. The conclusions drawn are presented, the research limitations are discussed and the recommendations for future research.

6.1 Conclusions

There is growing appreciation amongst local governments that have adopted asset management practices. Literature has revealed an increased trend and support of operational property asset management approach. It has shown that local governments that adopt an asset management framework are failing to optimise the full benefits of implementation of the framework. Thus, the research aimed to investigate the property asset management process in the National Department of Public Works (case study) and identify possible opportunities and weaknesses in its framework.

A summary of themes were emergent from the content analysis method. The emerging themes that were observed outlined the key objectives of the study. The objective of the study was to identify possible opportunities

and challenges in the NDPW. To achieve this aim, the research has followed and accomplished the following research objectives:

1. Assess the current property management in the NDPW

The focus of this objective was to review the current status of the property management in the government department. This was evaluated in terms of the need to implement an asset management framework. To realise this objective two key data collection methods were used. Firstly, a review of literature using documented sources on the current property management. These sources used internal memos, meeting minutes/presentations to understanding the current operations prior to adopting an asset management framework. Lastly, using semi-structured interviews to examine participants' opinions on the current operations. The evidence has revealed that despite the current property system, there are still limitations in the current system. These limitations are: meeting client accommodation solutions, having a reactive approach to property management, not optimising the property portfolio, underdeveloped property management information systems and insufficient performance indicators.

2. Assess employees' perception of asset management

To realise this objective, three data collection methods were utilised document analysis, semi-structured interviews and participant observation. The evidence from the data revealed that all participants understanding of asset management is not uniform. This is one of the key weaknesses of the PMTE strategy. Employees require training and this would improve communication right through from senior management to the rest of the organisational structure.

3. Identify opportunities and weaknesses in the PMTE strategy

To realise this objective, three data collection methods were utilised document analysis, semi-structured interviews and participant observation. The findings revealed some of the key weaknesses would be: lack of continued implementation from senior management (weak leadership), employees' resistant (lack of culture) to change due to being unskilled and corruption. Whereas the key possible opportunities would be: whole life cycle asset planning (acquisition, planning, operations and maintenance, disposal), reduction on the national budget, improved policy making and revenue generative.

The overall conclusion that can be drawn from the research report is that the aim and objectives have been fully realised. The current property management approach by the National Department of Public Works was thoroughly investigated. The existing framework of asset management is inadequate to meet the departments' objectives and the transition of using the PMTE strategy (asset management) is preferred. Further research is required in this area to completely realise the true understanding of this topic.

6.2 Limitations of Research Findings

As is the case with all research studies, there are limitations which exist in aspects relating to the research methodology, the data analysis techniques and interpretations of results or research findings. One of the critical limitations of this study is that it is based on a single case study. Some other unique elements to the study are the organisational structure and other Government objectives that need to be met, in comparison to other Government organisations with asset management frameworks.

For the semi-structured interviews the targeted personnel consisted of individuals at NDPW Head office in Pretoria and did not include individuals at regions across the country. Furthermore the sample consisted primarily of individuals involved in the PMTE turnaround strategy excluding the rest

of the personnel in NDPW (generalisation of the findings). The Author determined the number of interviews and based on time constraints the number remains limited. Consequently, this places a limitation to the research as there will be unexplored views. The sampling plan used in this research is not representative of the full extent of the NDPW. Issues such as selection of representative samples, response rate and dealing with missing data due to low or non-responses are required for improved results.

One of the limitations to participant observations is the potential of being biased in the collection/interpretation of data. The researcher identifies that there will be a potential level of bias which will influence the validity of the results. The researcher managed this subjectivity and present and processed the evidence objectively. Debriefing was utilizing where a protocol was utilised to reduce the subjectivity. Bias in participation observation was viewed and still included into the research to support the findings from the other methods of data collection.

The study involves qualitative data and there is always a possibility of the researcher making human errors when dealing with interpretation, presentation and analysis of data. The analysis used in the study presents an understanding from a single point of view, consequently leaving open opportunities for misinterpretations of participant opinions.

6.3 Recommendations for further research

The researcher strongly believes that the findings made in the study can be improved by using larger samples or multiple case studies. Regarding the semi-structured interviews, further research could widen the sample to other regional offices and a larger sample size using the same aim and objectives. The study also seeks to provide insight into the PMTE strategy and gives guidance in terms of opportunities and weaknesses. The research also opens up opportunity to assess the current state of asset

management in government or public organisations in South Africa. By widening the research scope, asset management in local government practice can be improved by obtaining experience from different approaches currently used in industry.

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8. APPENDIX 1

8.1 Ethic clearance email

Bruno Emwanu <Bruno.Emwanu@wits.ac.za> 22/05/2017

to me, Teresa

Dear Vikash

I am pleased to inform you that the School Ethics Clearance Committee has completed assessing your application and it has been successfully cleared. The ethics clearance number is MIAEC 008/17. Please use this our reference for all future correspondence on this matter.

By copy of this email your supervisor is also informed.

Regards,
Dr. Emwanu

8.2 Company letter of consent



public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

Private Bag X65, PRETORIA. 0001 Int Code: +27 12 Tel: 406 1300 Fax: 321 3898
E-mail: Solly.Mwanza@dpw.gov.za website: www.publicworks.gov.za

Attention: Mr V Lopoo
National Department of Public Works
Private Bag x 65
Pretoria
0001

Dear Mr. V Lopoo

REQUEST FOR PERMISSION TO CONDUCT A RESEARCH WITHIN THE NDPW ON THE TOPIC "INVESTIGATION OF A HOLISTIC PROPERTY MANAGEMENT APPROACH ON A GOVERNMENT DEPARTMENT".

1. Your request dated 01/12/2016 pertaining to the above mentioned matter is hereby acknowledged.

2. The Department has decided to grant you permission to conduct a research study on the topic "Investigation of a holistic property management in a government Department".

3. You are hereby requested to submit the outcome of your approved research to the Department, through the Director: Human Resources Development for future references and service delivery improvement strategies to be sourced from your findings and recommendations.

4. The Department wishes you everything of the best in your academic and career developments.

Yours Sincerely

Mr M Dlabantu

Director General

Date: 30/01/2017

8.3 Participant letter of consent

Letter of Consent

I, _____, agree to participate in the MSc research entitled *Investigation of a holistic property management approach in a Government Department*, to be undertaken by *Vikash Loopoo (student no.: 0702268A)* under the supervision of *Ms Teresa Hattingh and Prof David Kruger*, and certify that I have received a copy of this letter of consent.

I acknowledge that the research has been explained to me and I understand what it entails, as follows:

- I agree to allow access to information that is at my disposal for the purpose of this research.
- There will be one interview, which is expected to take no more than 1 hour.
- The interviews will be audio taped, and transcribed for analysis by the researcher.
- I have the right to withdraw my assistance from this project at any time without penalty, even after signing the letter of consent.
- I have the right to refuse to answer one or more of the questions without penalty and may continue to be a part of the study.
- I may request a report summary, which will come as a result of this study.
- I am entirely free to discuss issues and will not be in any way coerced into providing information that is confidential or of a sensitive nature.
- Pseudonyms will be used to conceal my identity, and that of my company, my employees, my suppliers and my customers. The information disclosed in the interviews will be confidential.
- Audio-tapes and transcripts will be kept securely stored during the research and after the research has been completed.
- This project was approved by the Faculty of Engineering and the Built Environment of the University of the Witwatersrand and the School of

Mechanical, Industrial and Aeronautical Research Ethics Committee (non-medical) of the University.

- If I have any questions or concerns about my rights or treatment as a participant, I may contact the Chair of the School of Mechanical, Industrial and Aeronautical Research Ethics Committee (non-medical) at 011 717 7343 or by email: Bruno Emwanu (Bruno.Emwanu@wits.co.za).

Signed: _____

Date: _____

Questions concerning the study can be directed to:

Vikash Loopoo

Tel: 082 478 9865

Email: 0702268A@students.wits.ac.za

9. APPENDIX 2

9.1 Interview protocol

Jacob and Furgerson (2012), define an interview protocol as more that a list of interview questions. In writing a successful interview protocol the following guide was used to develop the semi-structured interview questions:

1. Research should guide your questions: a literature review on asset management was conducted prior to the creation of interview questions. Knowing the research lead to the development of questions that a specific to the research topic.
2. Use a script for the beginning and end of your interview: an information sheet was given to each participant before the interview.
3. Questions should be open-ended: open-ended questions were incorporated in the list of questions. This allowed for additional data collected about asset management and the current management of asset in the public/private sector.
4. Start with the basics: Basic background questions are listed about the participant is listed in the first few questions of the interview.
5. Begin with easy to answer questions and move towards ones that are more difficult or controversial: the interview questions are listed in an order from those that are least difficult to those that are most difficult.
6. Write big, expansive questions: expansive questions are incorporated in the questions. This allowed for participants to say things that were never thought and could be used as data in the study.
7. Use prompts: the research found that this was not necessary for the interview sessions and not required in the research.
8. Be willing to make “on the spot” revisions to your interview protocol: the researcher was able to make adjustments in the interview to allow the design of the study to emerge as the research progressed.

An initial set of interview questions (**Table 12**) were developed by the researcher in order to answer the research question. These interviews were first conducted on three participants. These questions were later improved to extract the optimal information for all participants. The second set of questions (**Table 13**) is listed after the preliminary set.

Table 12: Preliminary Interview Questions

1. What is your position in terms of the organisation and what are your qualifications?
2. What do you understand about Asset Management?
3. In the current asset management system what are the key issues?
4. Do you think there is need for complete revamp of the current asset management system, and can you identify the objectives of transformation strategy?
5. In your opinion what is the importance of you (in your position) understanding Asset management?
6. What are the challenges that you (in your position) would be faced by implementing Asset management?
7. Is there a support or commitment from senior management to asset management in the department?
8. Does the NDPW have a clear strategy and vision for Asset Management?
9. Do you think management at the lower levels are aware of the Asset management strategy?
10. Have you been taught any skills with regards to Asset Management?
11. Do you think that the public sector must be educated on asset management systems so as to ensure appreciation of proper and effective asset management systems within the South African government?
12. What are the possible opportunities and challenges offered in NDPW turnaround strategy?
13. What would you say is the current state of Asset Management in this industry (public sector)?
14. Do you think it would be reasonable if the management of property in the public sector in South Africa is commercialized (private sector), what are the advantages and disadvantages?

Table 13: Final list of Interview Question

1. What is your position in terms of the organisation, are you in lower, middle or senior management?
2. What do you understand about Asset Management?
3. In the current asset management system, which key areas that you think may need attention and what are the key issues?
4. Do you think there is need for complete revamp of the current asset management system, and can you identify the objectives of the PMTE asset management strategy?
5. Do you think the Department is moving towards the right objectives by implementing as asset management system?
6. In your opinion what is the importance of you (in your position) understanding Asset management?
7. How long might the government take to align itself to the new asset management framework if implemented?
8. What are the challenges that you (in your position) would be faced by implementing Asset management?
9. Is there a support or commitment from senior management to asset management in the department?
10. Does the NDPW have a clear strategy and vision for Asset Management?
11. Do you think management at the lower levels are aware of the Asset management strategy? Has it been communicated appropriately?
12. Have you been taught any skills with regards to Asset Management?
13. Do you think that the public sector must be educated on asset management systems so as to ensure appreciation of proper and effective asset management systems within the South African government?
14. When do you think it will be necessary to make a period assessment on the asset management frameworks in South Africa so that the government aligns itself to the latest industrial trends?
15. What are the possible opportunities and challenges offered in NDPW turnaround strategy?
16. What would you say is the current state of Asset Management in this industry (public sector)?
17. Do you think it would be reasonable if the management of property in the public sector in South Africa is commercialized (private sector), what are the advantages and disadvantages?

10. APPENDIX 3

10.1 Data Analysis

The analysis below represents the data collected from the semi-structured interviews. The interview questions were categorised into headings and participant answers were further categorised into “yes” or “no” answers for simplicity.

Table 14: Current Property Management data analysis

	Number of Responses	Yes	No	% Yes	% No
Need to change current Asset Management	14 (1 non response)	9	3	64.2	35.8
DPW moving in the right direction by implementing Asset Management strategy	15	9	6	60	40

Table 15: Understanding Asset Management data analysis

	Number of Responses	Yes	No	% Yes	% No
Understanding of Asset Management in current position	15	10	5	66.7	33.3
Support from Senior Management to Asset Management	15	11	4	73.3	27.7

PMTE clear strategy and vision for Asset Management	15	10	5	66.7	33.3
Public Sector educated in Asset Management	15	15	0	100	0

Table 16: Training and Skills transfer data analysis

	Number of Responses	**Yes**	**No**	**% Yes**	**% No**
Skills Transfer	15	1	14	6.3	93.3
Asset Management Communication	15	1	14	6.3	93.3
Training in Asset Management	15	3	12	20	80

Figure 13 and Figure 14 below represent the PMTE Asset management and Strategic Business process obtained from literature whilst performing the document analysis in the study.

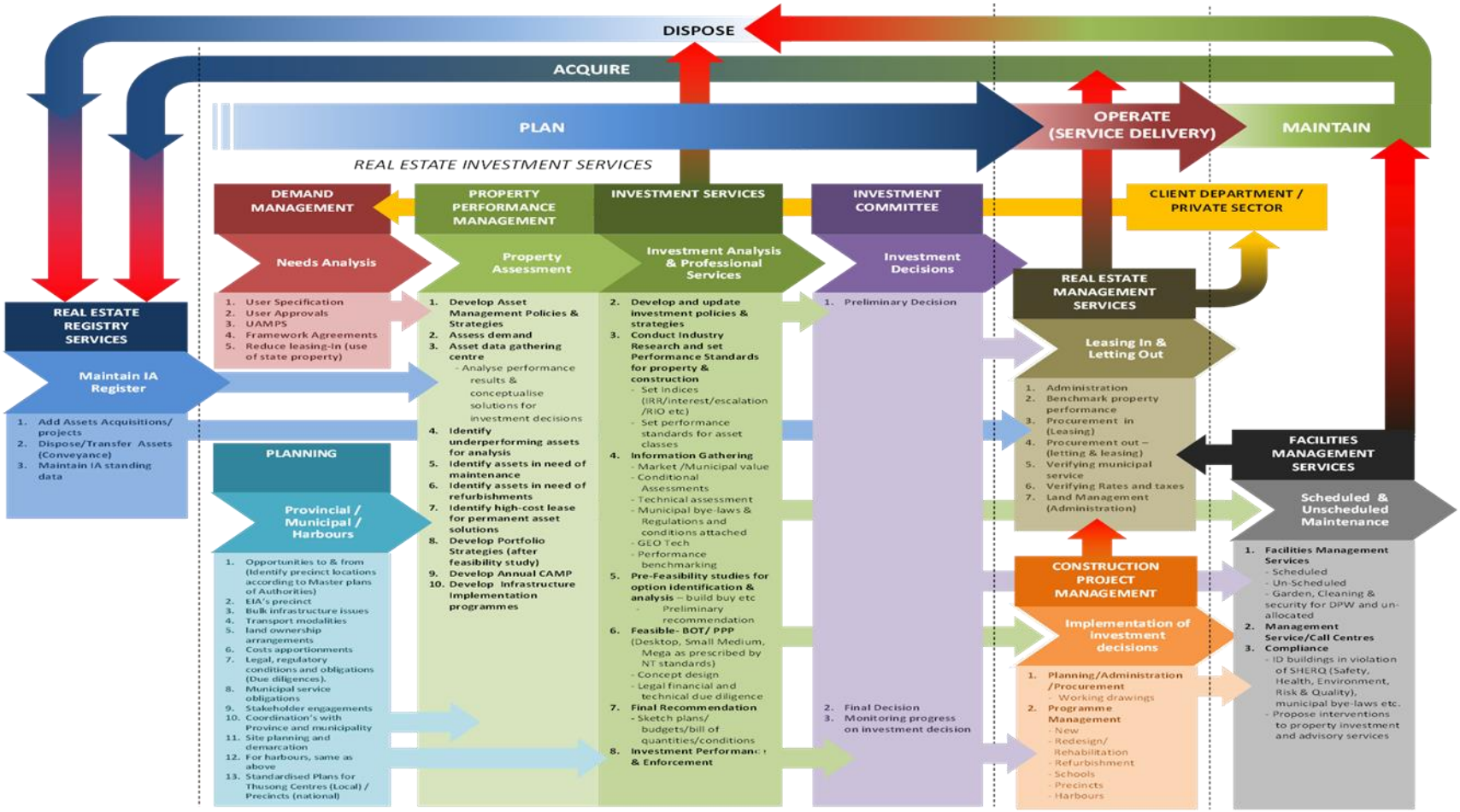

Figure 12: PMTE Asset Management Business Process (DPW, 2016 p 18)

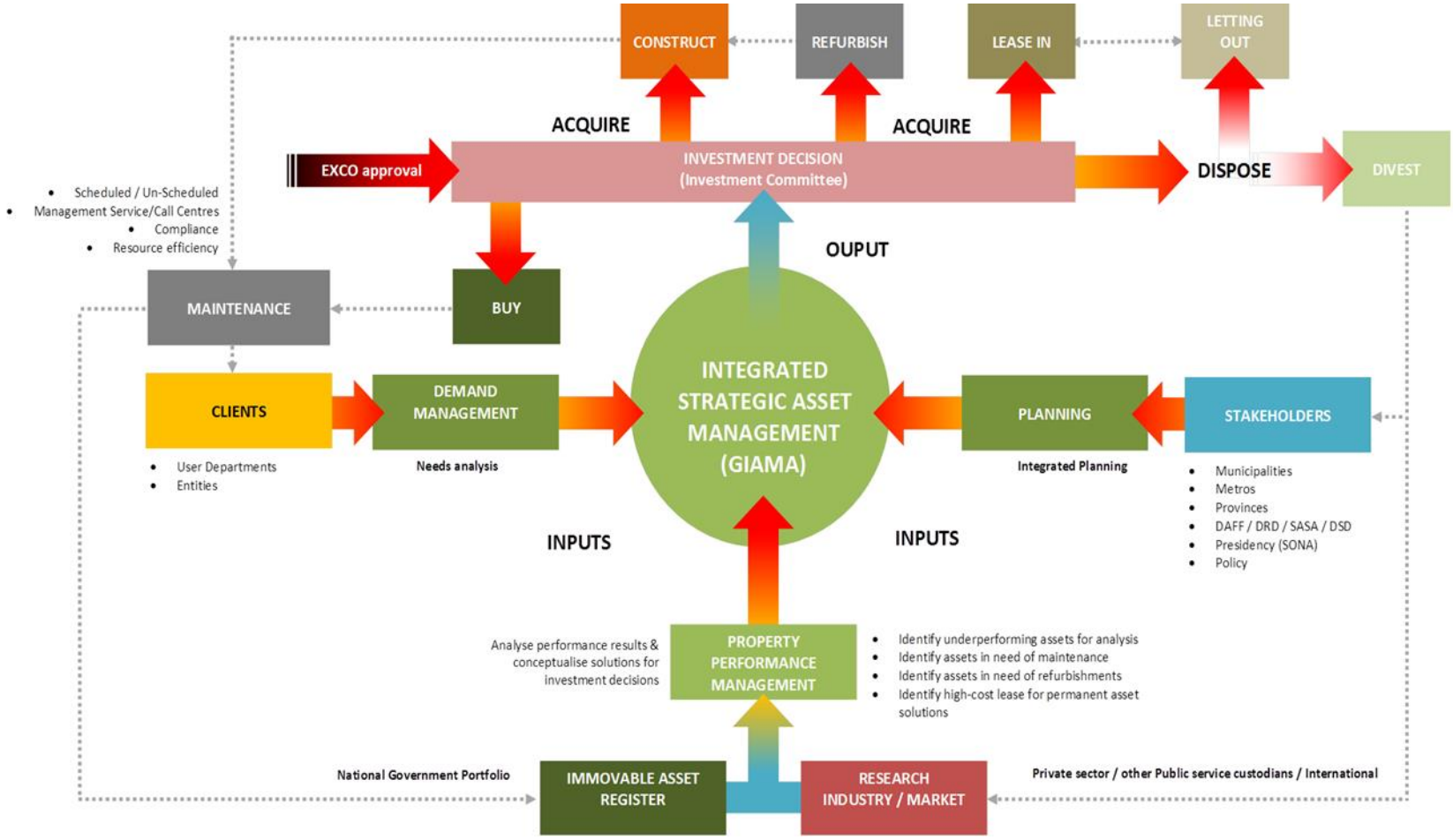

Figure 13: PMTE Strategic Business Process (DPW, 2016 p 19)