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ECONOMICS AND MANAGEMENT

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Master of Science in PROJECT MANAGEMENT

**RESEARCH TOPIC – EFFECTIVENESS OF PROJECT MANAGEMENT
OFFICE RELATIVE TO THE KING SABATA DALINDYEBO LOCAL
MUNICIPALITY IN MTHATHA, EASTERN CAPE.**

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Nomenclature

List of Abbreviations

AGSA – Auditor General of South Africa
BIM – Building Information Modeling
COGTA – Cooperative Governance and Traditional Affairs (Department)
DATA4MIA – Data for Municipal Infrastructure Assets
DCOG – Department of Cooperative Governance
GIS – Geographic Information Systems
IDP – Integrated Development Plan
KSD – King Sabata Dalindyebo
LM – Local Municipality
MIG – Municipal Infrastructure Grant
MISA – Municipal Infrastructure Support Agent
MISDF – Municipal Infrastructure Service Delivery Functionality
MSA – Municipal Structures Act
NT – National Treasury
O&M – Operations and Maintenance
OHS – Occupational Health and Safety
PMBOK – Project Management Body of Knowledge
PMI – Project Management Institute
PMO – Project Management Office
PMU – Project Management Unit
PRINCE 2 – **P**roject **I**n **C**ontrolled **E**nvironment
PT – Provincial Treasury
SALGA – South African Local Government Association
SMIF – Special Municipal Infrastructure Fund
SOLG – State of Local Government report
UCT – University of Cape Town

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ABSTRACT

Background: The role of the Project Management Office (PMO) in organizations continues to be a topic of great interest to project management practitioners. The PMO has many potential roles to play as a contributor to advancing the performance outcomes and imperative success factors/milestones of any organisation, yet, for many organizations, a struggle exists to define the PMO role, to position the PMO for long-term success, and to leverage the PMO to support achievement of the organization's strategic objectives.

The basic tools explored as part of this research are based on the premise of the MIG PMU guideline issued by the Department of Cooperative Governance and Traditional Affairs (COGTA) together with National Treasury on how compliant Project Management Unit (PMU's) should be structured and resourced in municipalities for effective delivery of services to its intended beneficiaries that are communities, therefore the research study explores if the guideline is accurate and is utilized to optimize expectations and it is in-line with international standards on how project management office should be structured and resourced.

Objectives: This study investigates the challenges faced by PMO's in achieving project objectives within the local government sphere focusing on the South African context and evaluates the effectiveness of the project management unit at the local authority sphere amid all the infrastructure planning and delivery challenges exhibited through the performance of municipalities in provision of basic service delivery through infrastructure projects and further exhibits how the PMO's are structured and resourced.

Methodology: This study commenced by undertaking a literature review of peer reviewed journal papers to identify and analyse applicable PMO frameworks and their success factors to improve project performance and delivery. It further used case study research approach with a focused municipality to confine the method of study and data collection and also used structured interviews as a form of collecting data to avoid open-ended questions and responses through an unstructured interview method.

Based on researcher's understanding of the local government environment, direct observations were also used to gather available data through direct observation of

performance by municipalities and also during the interviews with participants. Participant's observations and written documentation were also considered in the literature review, as it provides more complete understanding of the phenomenon. With all the combined factors applied, it eventually embroidered principles of the qualitative research.

Results/Findings: The results show key outcomes in how to structure and resource the composition of the Project Management Units at municipalities and utilisation of technological software packages as form of performance enhancement. Further findings are that the prescripts of the MIG PMU Guidelines as issued by COGTA for MIG receiving municipalities matches up to the PRINCE 2 framework and gated stages is recommended

The study agrees with the existing PMO framework literature that suggest for effectiveness of PMO's, the must be regulated span of control for project managers in administering a certain number of projects regardless of the complexity of projects. Another imperative alignment to the existing literature is that of clearly defined roles and responsibilities amongst project stakeholders to enhance understanding and improve effectiveness of the PMO's.

Conclusion: The study concludes by recommending adaptation of project management office frameworks at local government sphere as a way of improving effectiveness of PMU's thus ensuring that administering of municipal projects are creating efficiencies that demonstrates critical success factors for functional PMU's and project success. The study also recommends the regular update (atleast every 5 years) of the MIG PMU Guidelines as issued by COGTA.

Keywords: Critical Success Factors, PMO Framework, Infrastructure Management, South African Local Government Legislation, Local Government and service delivery, Programme and Project Management, Project Management Office, Project Maturity.

CHAPTER 1: INTRODUCTION TO THE RESEARCH REPORT

1.1 Introduction

This chapter presents a brief overview of the research topic before discussing the background to the research problem. The research problem statement, the research question, research objectives and the research proposition are introduced as part of this chapter as well. Furthermore, the chapter introduces the research structural formation and content.

1.2 Overview

Basic provision of infrastructure services is an integral function of any municipality in South Africa and local government as the first access for communities to government, its purpose and service is required to be par excellent. A provision of structures with resources have been formulated to render services within municipalities and this research report seeks to explore effectiveness of Project Management Offices that are utilized by municipalities to deliver infrastructure projects that are funded through Municipal Infrastructure Grant (MIG) and other funding sources intended for infrastructure needs.

For the context of the study, the Project Management Office (PMO) will be used as the reference point and known study focus point, however within the local government sphere in South Africa, the office that administers infrastructure projects is referred as the Project Management Unit (PMU), hence the subject of the study also refers to PMU and this brief is provided to eliminate any confusion and create an understanding of interchangeable use of the terminology.

The study will focus on King Sabata Dalindyebo Local Municipality as a case study. The municipality is one of the biggest recipients of the Municipal Infrastructure Grant (MIG), as it is allocated on average about R100 million annually and as such, the municipality operates with a project management unit structure as provided for in the Division of Revenue Act. (DoRA) Framework for public service grant recipients. The municipality demographics refers to an estimated population of 550 000 living within the boundaries of the municipality (StatSA, 2022) and therefore substantial level of effort is required to provide credible infrastructure service delivery for its population.

Project management practitioners are still very interested in learning more about the role of the Project Management Office (PMO) in organisations. The Project Management Office (PMO) has numerous potential roles to play in advancing these crucial practices as organisations refine their project, programme, and portfolio management methods to better align work with strategic goals, support effective stakeholder communication and collaboration, develop talent, and focus on realising value from organisational investments through effective benefits realisation management. However, many organisations struggle to define the PMO role, position the PMO for long-term success, and leverage the PMO to support achievement of the organization's strategic objectives (PMI, 2013). Although there are differences between PMOs, it is evident that PMOs are becoming more important in many organisations, and that many more have a strong desire to make PMOs much more strategically focused by giving them more responsibility and collaborating with business leaders to achieve strategic goals (PMI, 2013).

A Guide for the Establishment of a Project Management Unit (PMU)/Capability of municipalities reference which was published by COGTA in 2018 (***to be referred to as PMU Guide***) states that municipalities have a key role in coordinating development activity and the provision of municipal infrastructure within their domains, and that the Municipal Infrastructure Grant (MIG) programme is demand-driven with decentralised service delivery. The PMU guide further elaborates that the entire approach of MIG is focused on improving the capacity, efficiency, effectiveness, sustainability, and accountability of local government. In light of this, the receiving municipality's planning, budgeting, financial management, and operational arrangements must be followed when managing the grant at the municipal level. The Municipal Manager as accounting officer is responsible for the effective management of all capital funds. All MIG receiving municipalities need to develop capacity to administer MIG funds and manage infrastructure projects. The aim, therefore, becomes to establish programme and project management capacity in all grant-receiving municipalities. It is important to note that programme and project management capacity and capabilities are essential for a municipality to be in a position to implement its programme on capital projects in an effective and efficient manner and taking into consideration the aspects of costs, time and quality.

The PMU Guide further sets out various functional processes that should be undertaken by the project management office of a MIG receiving municipalities and it refers to programme/project management, financial management, project Identification/feasibility process; contract administration, reporting & monitoring, project-based capacity building, operations & planned maintenance, geographical information system and community liaison/development.

The annual recorded Municipal Infrastructure Grant (MIG) expenditure performance around the country is recorded at 85% of its entire annual allocation, which was R15,9bn in the 2020/21 financial year (FY) for all 219 MIG receiving municipalities (National Treasury Grant Performance report, 2021). MIG is one of many conditional grants that are disbursed to municipalities by National Treasury through the Division of Revenue Act (DoRA), to assist municipalities to effectively undertake function of providing basic infrastructure for their citizens and to eradicate infrastructure backlogs. One of the key conditions is for municipalities to form and have a Project Management Office (PMO) that will administer the functions and ensure that the annual allocation of the grant to the municipality receives substantially abilities to spend it creating quality basic infrastructure services within prescribed period approved for to plan and implement those projects.

The MIG seeks to eradicate municipal infrastructure backlogs for underprivileged communities by guaranteeing the provision of basic services such as water, sanitation, roads, and community lighting. The Department of Cooperative Governance (DCOG) is assigned a responsibility of being a transferring officer in the DORA and is responsible for managing and transferring the MIG and provides support to provinces and municipalities on implementing MIG funded projects.

In accordance with Maluleke (2021), Auditor General of South Africa (AGSA) who stated that “Given that less than 25% of municipalities could produce high-quality performance reports for us to audit, it is not shocking that citizens receive subpar services from them. Just under a half of the municipalities were able to provide dependable performance information after taking our findings into consideration”. “We noted significant non-compliance at 86% of municipalities and once again saw widespread non-compliance with the legislation”. “Similar to other years, there was a high rate of non-compliance with supply chain management laws, which greatly influenced the irregular R26 billion in expenditures” (Maluleke, 2021).

“We have seen many initiatives, plans and strategies, even direct interventions by national and provincial government but these have had little effect. Short-term solutions such as consultants, administration and additional monitoring, rules and capacitation are just not working” (Maluleke, 2021). She continued to outline that poor workmanship, project delays and non-adherence to infrastructure-related requirements were observed on water and sanitation projects, and on projects related to providing shelters for the homeless. “In our report, we once again highlight the significant deficiencies in the procurement and contract management processes, and report on the inadequate controls meant to ensure that payments are only made for goods and services that are delivered at the right time, price and quality” (Maluleke, 2021).

Maluleke (2021) recommended that, the national and provincial government leadership needs to work together with municipalities and focus on the following:

- Ensuring that leadership sets a tone of ethical and courageous leadership, service-orientation, good governance and accountability.
- Capacitating and stabilising administration.
- Enabling and insisting on a strong control environment with practical, automated, and routinely executed internal controls that prevent financial loss, wastage and transgressions, and significantly improve financial and performance management and reporting.
- Implementing swift, consistent, and appropriate consequences for accountability failures.

As much as the Auditor General of South Africa emphasises on pointing out the systematic failures of financial management in local government but her recommendations also focuses on the capacitation of local government, practical enhanced controls with the internal processes and leadership clarion call for active reforms.

One of the key focuses presented in the (*Municipal Structures Act (MSA) No.117 of 1998*), is “to regulate the internal systems, **structures and office-bearers** of municipalities”, so that they are able to perform in accordance with their designated functions and powers. The reference to MSA is because it is a guiding base for a functional project management unit in a municipality and similarly to what Auditor General is proposing to improve performance of municipalities, leadership

stepping up to serve the communities within their jurisdiction, and with all their abilities in accordance to the powers and functions assigned to that municipality.

Therefore, it is imperative to have a structural sound formation of Project Management Office at municipalities, PMO's that are able to effectively plan, implement, and operate projects effectively and efficiently.

1.3 Background to the Research Problem

Most of South Africa's 257 municipalities have struggled in recent years to fulfil their basic obligation of providing basic services to their inhabitants and communities (Managa, 2012). Due to this, there have been numerous demonstrations/protests against service delivery throughout the nation for the past few years, many of which have featured violent crimes. (Managa, 2012). A failure of municipalities to improve their functionality in terms of service delivery, will result in more protests that could be more violent than the any of those from previous years (Managa, 2012). Municipalities are continuing achieve below the requirement pertaining to infrastructure projects that receives annual allocation of infrastructure grants (particularly Municipal Infrastructure Grant), and this is credited to a combination of various factors including amongst them human resource capacity, lack of relevant tools of trade and political interference (SOLG, 2021). Without a consideration of factors, service delivery and creation of benefits by completing infrastructure projects on time, within budgeted cost and delivery of quality projects is continuing to be compromised by municipalities due to the issues raised within the research problem.

The National Development Plan (2011) set up a target for a full roll-out and access by all citizens of basic services (roads, water, electricity, and sanitation) by 2018, yet at the time of writing this report, the infrastructure backlogs are still a thorny issue for South African municipalities.

Despite the provision of PMU guide (2018), there are still challenges that are creating inefficiencies in the project management provision in the local government sphere. Municipalities are continuing to underspend the annual allocated grant fund, or not spending the grant funding on intended purposes, or have resulted in cost overruns, resulted in non-adherence to programmes schedule for completion, or non-value creation for projects and compromise of quality. These challenges can be associated

with many aspects around the composition of the project management office or not following best recognized project management office framework and the research will explore causal factors within that.

1.4 The Research Problem Statement

Municipal environment requires a rigorous approach and stakeholder determination to provide optimum service provision and government has set-up various coordination forums, issued a substantial amount of publication and work with magnitude of stakeholders to maximise opportunities of creating value with the fiscus capital investment that is made through issuing municipalities with infrastructure financing model of capital grants. With all the coordinated efforts, yielding a desired outcome is still marred with challenges that are not satisfactory.

The research problem statement is:

Despite the provision of PMU guidelines, there are still challenges that are creating inefficiencies to achieve project goals in the project management provision within the local government sphere.

1.5 The Research Question

The research question can be stated as:All three

What are the challenges faced by the PMO/PMU within the local authorities that hinders the achievement of project goals?

1.6 The Research Proposition

The research proposition for the research is stated as follows:

Project goals within local authorities can be achieved if the challenges facing PMU can be identified and resolved.

1.7 The Research Objectives

The research objective is to achieve as follows:

- Identify the capacity challenges faced by the PMU's at local authority level;
- Determine the project management capacity challenges within the PMU's in local authorities.

- Identify the tools and techniques that can facilitate the achievement of project goals in the PMU's in local authorities.
- Consider social and environmental impact to PMU
- List factors that can be implemented to improve the functioning of PMU's in the local authorities.

1.8 The Research Aim

The aim of the research is to identify the factors that are hindering the achievement of project goals by PMO's of municipalities and to also review, study and measure alignments of the PMU structure (PMU Guideline) at local government sphere to that of Project Management Office framework as issued by the Project Management Institute in improving functionality, efficiency, and project delivery.

1.9 Proposed Research Methodology

The methodology followed in this research is as follows:

- Conduct a literature review of peer reviewed journal papers to identify and analyse applicable PMO frameworks and their success factors to improve project performance and delivery.
- Use a qualitative method to gather data through engagement of subject expert and knowledgeable participants focusing on King Sabatha Dalindyebo Municipality.
- Structured interviews were used to collect the primary data.
- Direct observations were also utilised to gather available data through direct observation of municipal performance and also during the interviews with research participants.
- Summarize, analyse, and discuss the collected information.
- Draws up a conclusion to the research.
- Recommend any future studies or study areas.

1.10 The Research Limitations

Limitations that could hinder the research are as follows:

- Scope of the research work is limited to one municipality in the Eastern Cape and will utilise the outcomes as a general principle of occurrence in other municipalities as well.

1.11 Structure of the Research Report

Chapter one: Introduction

A brief description of the background leading to the research topic will be outlined (stating the history and baseline of the topic and concerns that necessitated the study). The problem statements, research questions, research aims, objectives, methodology and limitations are also discussed in this chapter.

Chapter two: Literature review

An in-depth literature review of the subject matter is carried out with specific focus on PMO frameworks and how correct utilization affect project objectives.

Chapter three: Research Methodology

Research methodology gives a brief description of how the research may be executed. Methodology of obtaining the data and information received may be analysed to help come to a conclusion.

Chapter four: Research Results and Analysis of Results

The analysis and interpretation of gathered data/information from research methodology will be presented. Furthermore, a discussion will explain the analysis of the results.

Chapter five: Conclusions and Recommendation

The research is concluded, and recommendations are made for future study areas.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

“A literature review is a critical evaluation of the research-based writings on a topic that have been generated by recognised academics and researchers. To put it another way, because literature reviews are secondary sources, they don't present any original or unpublished experimental study. Therefore, a literature review is analytical rather than descriptive in character” (Mayekiso, 2013).

Most organisation develops a project management office to effectively achieve organisational strategic and tactical intentions/objectives, however, the formation of the PMO navigates a long and challenging path to build a project management culture. A project office, programme office, or project support office may be established after executives or management are persuaded of the advantages of a project management culture. “The value of project management as a whole is, however, once more questioned if the benefits are not realised” (Jelley, G. 2014).

The literature review discusses the Project Management Frameworks and its relevance to organizational structure and that will be reviewed from various literature sources with a view to determine what is suitable for a municipal or local government environment.

2.2 Projects and Project Management

2.2.1 Project

According to Murray (2009), a project is a short-term organisation formed to carry out one or more commercial goods in accordance with an agreed business case (a PRojects IN Controlled Environment (PRINCE2) definition). Whilst the articulation by the Project Management Institute (PMI) defines a project as a brief undertaking started with the intention of producing a special good, service, or outcome (PMI, 2013).

2.2.2 Project Management

Project management is the application of knowledge, skills, tools, and techniques to project activities in order to achieve project requirements, according to the Project Management Body of Knowledge (PMBOK); this application of knowledge

necessitates the efficient administration of the project management processes (PMI, 2013).

Project management is the process of outlining a project with a thorough plan for how you and your company will accomplish a particular objective. It is a strategy that is broken down into steps, each of which is equally crucial (Reh, 2019).

An integration of various management processes can bring about successful projects (Shenhar & Dvir, 2007). Despite the worldwide use of project management activities, there is mention of the immaturity of literature in project management and it is suffering from a lack of theories to support the literature (Shenhar & Dvir, 2007). They further note in various books that the wide use of generic planning, organizing, controlling, and monitoring of activities can be of vital importance to project success.

2.2.3 Agile Project Management

The waterfall method is giving way to a more gradual and iterative technique called Agile Project Management (APM), in which developers and project stakeholders collaborate to comprehend the domain, determine what needs to be produced, and prioritise features (The PMI, 2015). APM requires active participation of stakeholders, and its basis is on reviewing lessons learnt and apply incremental and iterative approach to acquire project objectives, typical information technology projects are more agile in nature (Pinto & Slevin, 2006).

2.2.4 Sustainable Project Management

Enduring the goal of project management is to maximise benefits for stakeholders through the planning, monitoring, and control of project delivery and support processes. This involves taking into account the environmental, social, and economic aspects of the life-cycle of the project's resources, processes, deliverables, and effects. Project management must also be carried out in a transparent, equitable, and ethical manner, with proactive stakeholder participation (Silvius, 2021). Sustainability is about balance or harmony between economic, social, and environmental interests.

2.2.5 Project Management Processes

Standard or common processes for conducting projects have been associated with the following:

- **Initiation:** Obtaining approval to start the new project, determining its viability, and connecting the project's requirements, criteria, and standards to the unique needs and goals of the organisation. Internal and external stakeholders who will interact and have an impact on the project's ultimate outcome are identified, the project's initial scope is determined, and the project's initial financial resources are committed (PMI, 2015).
- **Planning:** Define the full project's scope, then create the project's guidelines, criteria, and requirements. At this point, the plans are also formalised and authorised. Resource allocation, project scheduling, and budgeting all take place when planning activities get began (Pinto & Slevin, 1988).
- **Execution:** The actual execution of the project and the establishment of methods for change control, financial control, and defect management while execution takes place. At this point, the project specifications are met by carrying out the works as specified in the blueprints. Construction is carried out after obtaining the necessary materials and resources (Pinto & Slevin, 1988).
- **Monitoring & Evaluation:** continuous oversight monitoring and assessment of the works if it is still conducted within the agreed set of standard and specification. M&E process is applicable to all stages of project management (PMI, 2015)
- **Close-out:** Record all lessons learnt, conduct final project audits/inspection, commissioning, project/product validation, acceptance certification, issue operation manuals. Main activity is that the project is handed over to the clients (PMI, 2015).

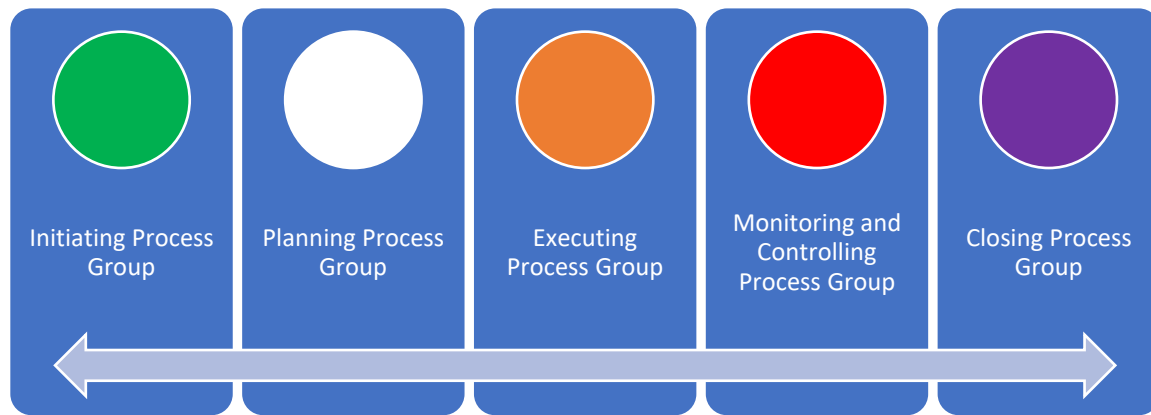


Figure 1: Project Management Process Groups interactions (PMI, 2015)

2.3 Managing Projects within project-based organisations.

2.3.1 Rethinking Project Management (RPM)

In most organisations, projects have become a crucial component to structure work. (Bakker, 2010) and constitute one of the most important organisational developments (Winter et al., 2006c). Management of projects is extremely important economically, and project work has grown dramatically in a variety of sectors, businesses, and countries (Turner et al., 2010; Winter et al., 2006c). Due to constant evolving environment (political, and social), organisations are confronted with a reality to rethink how they conduct business to achieve desired outcomes, and part of that, is rethinking project management which will provide unique insight with strengths and limitations (Morgans, 1997).

Classical Project Management	Rethinking Project Management
Executability, simplicity, temporality, linearity, controllability, and instrumentality.	Learnability, multiplicity, temporality, complexity, uncertainty, and sociability.

Table 1: Comparison between Classical Project Management and Rethinking Project Management (Nicholas & Steyn, 2012)

The importance of RPM is ensuring that the paradigm shift incorporates both old and new elements of project management (Nicholas & Steyn, 2012) and ensure that global dynamics and innovation converges new and existing technologies.

2.3.2 Organizational Matrix

Adopting the matrix form is primarily motivated by the ability to share resources in an easy-to-understand manner, which facilitates the successful resolution of related problems. In order to attain more efficiency in their transactions, multiple organisational systems are balancedly combined to create the matrix structure (Bashin, 2021). He continues to explain that although the matrix organization's structure is undoubtedly complicated and multidimensional, it can quickly reach higher levels of production and efficiency. When employees are required to work under various managers, the organisation becomes more adaptable. Since each employee must perform a varied set of tasks and activities, the diversity of the workplace culture promotes overall development (Bashin, 2021).

There are three types of matrix organizations:

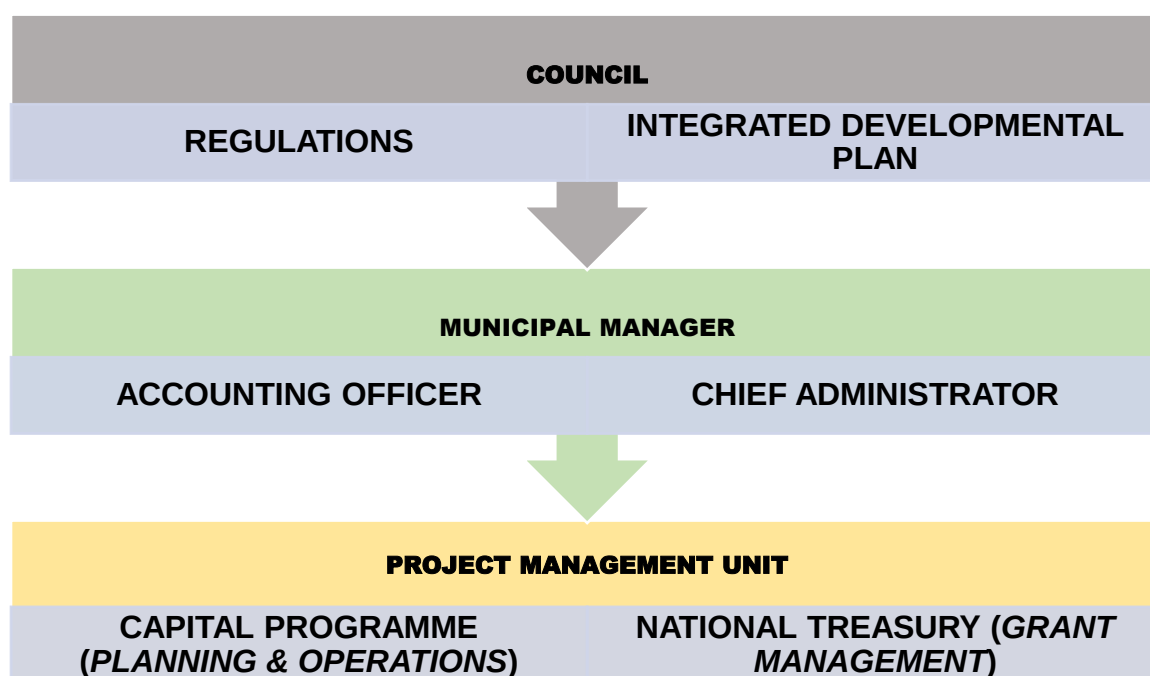
Table 2: Types of Organization Matrix (PMI, 2013)

Type of Organizational Matrix	Functions & Benefits
1. Strong Matrix Structure	The project manager has the most authority in this kind of matrix structure. He holds a significant position inside the organisation and is responsible for it full-time. Because he is supported by a full-time administrative team, his authority is unquestioned. He is in charge of the project's financial plan.
2. Balanced Matrix Structure	The project and functional managers share the same amount of power in a balanced matrix structure. Within the company, each possess equal authority and power. Although he works full-time, the project manager is assisted by a part-time administrative staff member. Each of them has equal influence over the project budget.

3. Weak Matrix Structure	Functional managers are in charge of project budgets. Due to his coordination responsibilities, the project manager's authority and power are restricted.
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The emphasis of discussing the organizational matrix theory and review provided is because it is quite imperative to have an understanding of how these influences the outcomes and overall performance of the PMO's in an organization and further highlights how the limitations of the organizational capacity can be circumvented and avoided through utilization of the matrix structures as discussed. Since formulation of MIG, various frameworks published including the MIG 2004 -2007 booklet makes suggestions pertaining to reporting lines as PMU is recommended to report directly to the Accounting Officer of the municipality (Municipal Manager), wherein the engineering functions which most projects falls within are with the Senior Manager (Technical Director) for Engineering Services.

Figure 2: Project Management Unit within overall structure of the municipality (PMU Guide, 2008).



A strong matrix structure is ideal to certain organization with matured level of governance principles in place i.e., when delegation of authorities (financial), policies

(HR, procurement, etc.) are in place, and organization have sufficient capacity to continue to be functional when some of the functional line personnel are appointed to focus on a particular project (PMI, 2013).

Balanced matrix structure is ideal for most organizations with limited resources that wants to capitalize the organization performance through implementation of projects without compromising the functional (operational) element of the organization. The arrangement is then either temporarily setup to ensure there is an optimal arrangement that suits both the functional and project managers, most importantly is not to create two centres of power within an organization, therefore rules and governance matters must clearly define their powers & functions, their roles & responsibilities and each of them must carry those defined performance requirements through a performance agreement (PMI, 2013).

A weak matrix structure often used in special cases where an organization is not a projectized entity and renders a certain programme/project as a temporary implementation strategy to deliver requirements of that particular outcomes outside the parameters of the functional unit. The leverage of this arrangement is that it enhances competition and performance of the units however it also creates animosity amongst the functional and project unit since the powers and most controls are one-sided. The project decisions have a long chain of authority prior being implemented as mostly will require an approval of functional manager. Often these arrangements ruin team spirit within a project as the project leader in a form of a project manager is often deemed powerless without much control role than that of facilitator (PMI,2013).

In a local government setup, when implementing projects, there are lots of considerations to put into a concept and understanding, i.e. the project governance have to adhere to Municipal Finance Management Act (MFMA) provisions, policies of the municipality and all other governance requirements that are in existence and this often places the distinct skill and knowledge requirements of a project manager familiar with these very important provisions of administration hence technical abilities alone of the project manager are not sufficient if it is not combined with governance knowledge and application experience (PMU Guide, 2018).

2.4 Project Management Office (PMO)

2.4.1 Types of Project Management Office

The PMO is a management framework that promotes the sharing of resources, methodologies, tools, and approaches while standardising the governance processes for projects (PMBOK, 2013). The duties of a PMO might range from performing support tasks for project management to actually being in charge of the direct administration of one or more projects. The Project Management Office (PMO) is an organisational structure designed to oversee a single project or a group of related projects, all of which are managed by the project manager (Darling & Whitty, 2016). The purpose of the PMO is to support functional units across the entire organisation in implementing PM principles and to provide strategic support to teams at different management levels (Biesenthal et al., 2019).

The PMI (2013) refers to several types of PMO's with varying degree of control such as:

Supportive: provides a consultative role by providing projects with templates, best practices, training, access to information and lessons learnt from other similar projects.

Controlling: provides required compliance by adoption of project management frameworks, methodologies, and or tools for conformance and governance.

Directive: It takes control of the projects by directly managing the projects.

Table 3: Project Management Office types (PMI, 2013)

PMO Type	Role	Level of Control
Supportive	Consulting, templates, project repository	Low
Controlling	Compliance, Project Management Framework, Conformance to methodology.	Moderate
Directive	Controlling, PMO manages projects	High

2.4.2 Project Management Office Frameworks

The Project Management Institute (2013) commissioned subject matter experts (SME's) to study the existing project management frameworks pertaining to its intentions, reporting lines, how it should be structured, the existing types of frameworks and lastly how to integrate elements of the PMO's.

The PMO framework is the formalised structure for setting up a project management office and resonates to the types of PMO's as defined by the Project Management Institute. The PMO framework provides guidance for the structure, suggests capacity requirements, recommends tools, and seek to define the project culture.

Below are the five PMO's that the SME's identified:

Organizational Unit PMO/Business Unit PMO/Divisional PMO/Departmental PMO

Provides project-related services, such as portfolio management, governance, operational project support, and human resource utilisation, to help a business unit or division inside an organisation.

Project-Specific PMO/Project Office/Programme Office

Serves as a temporary organisation created to support a particular project or plan and offers services linked to the initiative. May include helping with data management, coordinating reporting and governance, and performing administrative tasks to assist the project or programme team.

Project Support/Services/Controls Office or PMO

Presents the necessary procedures to support the organization's ongoing project, programme, or portfolio task management. Utilises the organization's established governance, procedures, practices, and technologies to assist administrative tasks related to project, programme, or portfolio delivery within its area of responsibility.

Enterprise/Organization-wide/Strategic/Corporate/Portfolio/Global PMO

The highest-level PMO in organizations having one, this PMO is often responsible for alignment of project and programme work to corporate strategy, establishing and

ensuring appropriate enterprise governance, and performing portfolio management functions to ensure strategy alignment and benefits realization.

Centre of Excellence/Centre of Competency

Provides tools, standards, and processes to the organisation to help project managers deliver projects more effectively, hence supporting project work. Enhances the organization's capacity by implementing best practices and providing project managers with a single point of contact.

2.4.3 The Role of the Project Management Office (PMI, 2013)

Whilst there are defined roles and functions for various PMO's however the organization and its needs determine the responsibilities required of the PMO and each organization has its own unique prospective outcomes it seeks to achieve through the PMO.

a) Setting up procedures and techniques for project management. Establish and run a system for enterprise project information. Set standards and systems for utilization in projects. Be the centre of excellence for organizational projects. It provides training and certification for project managers and other project personnel.

It also conducts post project reviews and audits. Actualize benefit realization management.

This PMO is mostly termed (by many authors) **Project Support Services**.

b) There is a PMO responsible for the identification and development of new projects, development of project scoreboard, for monitoring & controlling project performance and lastly for reporting of project status to top management and offer advice.

This PMO is mostly termed **Enterprise PMO** or Portfolio Management.

c) Manages one or more projects or programmes, conducts all the actual project management activities to realize project or programme objectives. It manages all the project data and human resourcing element (recruitment of project personnel) for the project. Actualize benefit realization of the project/programme.

Mostly is to ensure that all the project constraints are properly managed,

This PMO is referred as **Project-specific PMO**.

2.5 Project Management of Development Projects in Government

2.5.1 Guidelines for Human Settlement Planning and Development

CSIR as commissioned by the Department of Human Settlement in South Africa published a guideline that will be utilized as the planning, design, implementation, monitoring, and operational principle for all the human settlement programmes/projects in South Africa. The guideline reviewed herewith was published in 2005 and famously referred to as the “Red Book”, it consolidates all service standard details and serves as one stop shop for overview of requirement when commencing with a human settlement development (CSIR, 2005).

The researcher reviewed the human settlement guideline as it is the most that municipality’s capital programmes and projects are based on, it covers majority development of human settlements (provision of roads, stormwater, water supply, sanitation, cemeteries, sports facilities, community halls, waste facilities, etc.) and this requires prime focus to be place on resources, capacity, and effective ability to render and deliver these projects.

The CSIR guideline is system focused and very silent on guiding what type/calibre of resources particularly human resources will be required to be able to attain the delivery of services in accordance with the guideline. If the process consideration of any development can be applied, it is quite interesting how it is analysed.

Growth and change are processes that lead to development, which suggests advancement. Therefore, any development will have some sort of impact or effect on the surrounding ecosystem. A key responsibility of the project team is planning. It establishes the goals the team intends to achieve and the best course of action. A few strategic considerations must be made before beginning any in-depth design work. This is known as "master planning" or strategic planning (CSIR, 2005).

2.5.2 Master Planning

Planning's primary goal is to make it easier for a project's objectives to be achieved. The process's guiding objectives or goals will largely depend on the mindset of those who are developing them, but they should usually explain the what, where, when, how, and why of the undertaking (Firley and Grön, 2014). The availability and suitability of land resources should be taken into account when planning land use,

both in the short and long terms. The following guidelines should be taken into consideration when master planning (CSIR, 2005):

2.5.3 Sustainable development (CSIR, 2005)

- One of the main goals of master planning should be long-term or sustainable development. Two essential conditions for sustainable agriculture were emphasised by the Caring for the Earth, a strategy for sustainable living initiative, which was started in collaboration with the World Conservation Union, the United Nations Environment Programme, and the World-Wide Fund for Nature, namely:
 - securing a broad and enduring commitment to a sustainable living ethic; and
 - integrating conservation and development.

The World Health Organisation's Global Strategy for Health and Environment was a direct result of the United Nation's Agenda 21 which was drawn up during the Earth Summit in June 1992 at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil. Agenda 21 was an action plan to guide national and international activities to ensure that the natural resources of the world are managed in such a manner that sustainable development is achieved. The term "sustainable development" can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

An essential element of rational land-use planning is land evaluation, which should be a systematic way of looking at the options available and of considering the environment in which these options are likely to operate, so that the results of different courses of action can be predicted. Physical planning therefore cannot be divorced from social and economic circumstances or from administrative and constitutional processes. More importantly, the protection of the environment against pollution decay is essential, to optimise the benefits of sustainable development.

Certain premises must be the foundation of all planning. Numerous factors are determined by external factors, and it is important to acknowledge and take into account how they may affect the current strategy. External policy guidelines have the potential to impact the goals of any given development. To determine the significance

of these policies and how they might influence or effect the anticipated development, a policy impact assessment might be necessary.

2.6 Project Management Unit Guidelines for MIG (PMU Guide, 2018)

Municipal Infrastructure Grant (MIG) is a public fund allocated to municipalities to provide basic infrastructure services for their communities. It was established through the consolidation of:

- The Consolidated Municipal Infrastructure Programme (managed by DCoG),
- The Water Services Capital Grant (managed by the then DWS),
- The Community Based Public Works Programme (managed by the Department Public Works),
- The Building for Sports and Recreation Programme (Sport and Recreation SA),
- The Urban Transport Grant (Department of Transport).

The MIG programme has been designed to achieve the following:



Figure 3: MIG benefits (PMU Guidelines, 2018)

The purpose of the Municipal Infrastructure Grant (MIG) initiative is to offer a minimum of basic services to all South Africans. This will be accomplished by offering grant funding to pay for the capital expenses of the impoverished's essential

infrastructure. The MIG programme is a component of the government's larger strategic initiatives to end poverty and foster regional economic growth. As a result, it will maximise chances for business growth and employment generation. The initiative is driven by demand, and localities receive decentralised service delivery. In their respective domains, municipalities are essential in coordinating development activities and the provision of municipal infrastructure.

MIG must be allocated and transferred directly to a category B or C municipality that has the powers and functions for basic services referred to in the (*Municipal Structures Act, No. 117 of 1998, 1998: s84*) to enable the municipality to provide basic municipal infrastructure to the poor, in line with their functions (*Division of Revenue Act, No. 5 of 2022, 2022: s8*). Municipalities must prioritise MIG funds for infrastructure that services eligible beneficiaries, such as:

- basic residential infrastructure for the poor for water supply,
- sanitation services,
- roads and stormwater,
- waste management,
- street lighting and community facilities,
- new or upgrading of municipal bulk infrastructure to support existing areas, the formalisation of informal settlements and to support economic development.

Planning, budgeting, financial management, and operational arrangements within the municipality must all be considered while managing the grant at the local level. Effective capital fund management is the responsibility of the municipal manager in their capacity as an accounting officer. **All municipalities need to develop capacity to administer MIG funds and manage infrastructure projects.** The aim, therefore, is to establish programme and project management **capacity** in all grant-receiving municipalities (PMU Guidelines, 2018). It is important to note that programme and project management capacity is essential for a municipality to be able to implement its programme on capital projects in an effective and efficient manner and taking into consideration the aspects of costs, time, and quality.

The PMU Guidelines (2018) continues to outline that the project management function should be viewed as the ring-fencing of project management functions – possibly called a “unit”. It implies that municipalities should, where possible, use existing internal staff straddled across their structures before considering the employment of new staff members or outsourcing its functions. This process must be informed by the municipalities’ human capital resource plan and it’s IDP. In the event that a municipality have a fully functional technical department, these functions should be located in the Technical Department and the PMU Manager should report to the Technical Director. The function of the PMU manager could be that of coordinating the implementation of infrastructure projects for a municipality. If the municipality does not have a fully functional technical department, the PMU Manager should be reporting directly to the Municipal Manager. The PMU manager is responsible for coordinating the staff within the municipality designated in performing the functions on temporarily of a full-scale basis.

In order to perform the above functions, receiving municipalities may utilize a portion of their MIG allocation as determined by the MIG DoRA Framework for programme and project management costs related to grant funded projects (schedule 5B transfers) and only if a business plan is approved through a process stated below. An understanding of the extend to all schedule 5B grants is published each year in the DoRA. Provision will be made for increased budget on submission of written request and motivations to the appraisal team (National and Provinces) by municipalities for their PMU budget. It must be proven that all avenues have been explored i.e. utilisation of a shared PMU model between more than one municipality.

A suggestion is made in the PMU Guidelines (2018) that a suitably qualified project manager (which is a qualified engineer) must coordinate the PMU functions on a full-time basis. The following resources (partially or full time) must be considered and should meet the following minimum qualification and years of experience requirements:

Post	Minimum Qualification	Minimum years of experience
Programme/Project Manager (PMU Manager)	Engineering Degree (Civil)	5 years

Engineer (Planning, Design)	Engineering Degree	5 years
Technician	Artisan/electrical Diploma	3 years
Secretariat	Secretarial Diploma	2 years
Financial accountant	Finance Degree	3 years
Legal personnel	Law Degree (LLB)	3 years
Administrative	Matric	2 years
Occupational Health & Safety (OHS)	OHS Diploma/ Certificate	3 years
Data Captured	Matric	2 years
IT personnel	IT Diploma	3 years
GIS specialist	GIS Technical qualification	3 years
Community Officer/ Communication personnel	None	Community Activism

Table 4: Personnel recommended for functional PMU (PMU guidelines, 2018)

The above table is well and proper to outline capacity that must occupy a Project Management Office/Unit of the municipality however it does not define the resource requirements on extent, complexity of the projects that a municipality will be implementing and also it does not guide on how the structure of the required capacity based on the annual allocation of the grant (MIG) that is made to municipality on annual basis other than to refer that only up to 5% of the grant can be used for PMU. This guidance is rather ambiguous and lacks depth particularly if you consider the challenges that are experienced by municipalities in implementing the service delivery projects funded by MIG.

As we drive the point of capacity allocation, we must also consider what the State of Local Government (SoLG) report stated that there is a severe shortage of technical skills in local government, compromising service delivery (COGTA, 2021).

2.7 MIG allocation (PMU Guide, 2018)

The main consideration of allocation of MIG funds to a municipality should be close infrastructure gaps and considering the population in the municipality, the poverty

index, and backlogs in specific services. This is all applied in the consideration of the annual allocation to a municipality.

Founding principles of MIG in 2003 guided the basic elements of the formula for calculating the national totals are summarised below starting with the calculation of the total allocation to municipalities, $MIG_{(F)}$ calculated as the difference between the total allocation made to MIG through the national budget process ($MIG_{(T)}$) and the national MIG unit management costs and the allocation for Special Municipal Infrastructure Fund (SMIF). The Special Municipal Infrastructure Fund is a fund earmarked for special innovative and regional investment projects including:

- Projects that address new solutions to infrastructure problems.
- Large scale municipal infrastructure which crosses municipal boundaries.

$$MIG_{(T)} - \text{management costs} - \text{SMIF} = MIG_{(F)}$$

The $MIG_{(F)}$ allocation is further split as follows:

$$MIG_{(F)} = B + P + E + N + M$$

Where:

- B is the amount allocated for basic residential infrastructure (new and rehabilitated). This component consists of proportional allocations for water supply and sanitation, electricity, roads and 'other' (street lighting and solid waste removal).
- P is an allocation for public municipal service infrastructure (new and rehabilitated).
- E is an allocation for infrastructure for social institutions and micro-enterprises (new and rehabilitated).
- N is an allocation to identified nodal municipalities in the urban renewal and rural development programmes
- M is a negative or positive allocation related to past performance of each municipality relative to grant conditions.

Furthermore, PMU guidelines (2018) are issued for all municipalities to be able to administer the grant according to their conditions.

Revised Guiding MIG formula = $B + P + E + N$, where:

B – Basic Residential Infrastructure = 75% (Consisting of water, sanitation, roads & stormwater, refuse removal, street lighting),

P – Public Municipal Facilities = 15% (Consisting of community centres, sports facilities, social services, emergency services, parks & open spaces, and public transport),

E - Institutions and micro-enterprises = 5% (Local Economic Development initiative),

N – Project Management Unit = 5% (Formulation and administration of the PMU).

The objectives of the MIG programme with its components were to balance social and economic goals, the decentralization of spending authority within national standards, a focus on infrastructure required for a basic level service, ensuring the sustainability of infrastructure to reinforce local, provincial, and national developmental objectives, equity in the allocation and use of funds, the efficient use of funds, and predictability and transparency. As per the purpose of the infrastructure grants that brings in various sector departments into the fore, it then required a dedicated coordinating centre in its landing implementing centres which are the municipalities designated to receive MIG and the formulation of PMU's was then to play that function and be the centre of excellence in line with the grant conditions and also align to international project management best practices.

Considering the above requirements, administration of the grant requires some level of expertise with acceptable understanding and experience in technical knowledge that will drive service delivery project from the planning-based perspective.

The formula requires to consider the latest available or fast developing sectors that must be considered as basic service requirement like ICT fibre rollout band (which is now becoming an integral part of our lives).

2.8 PMU functions (PMU Guide, 2018)

The project management function for MIG includes the following:

- ***Managing MIG funding***: This includes managing MIG funding within the municipal accounting system, for infrastructure projects using MIG funds.

- **Co-ordination of all projects serviced by the PMU:** The PMU is not responsible for identifying projects in the IDP planning process but should liaise closely with municipal planning departments and the PIMSS centre.
- **Project feasibility studies and business plans:** This includes commissioning and managing project feasibility studies and the development of project business plans. Where appropriate the PMU should facilitate the involvement of other municipal departments in these processes.
- **Contract management:** The PMU is responsible for managing contracts with contractors and consultants for each project, including contracts for feasibility studies.
- **Project management:** This includes all activities to ensure that projects meet planning objectives and targets.
- **Project related capacity building:** The PMU is responsible for ensuring that project-related capacity building and development objectives are met. Where economies of scale can be achieved through capacity building initiatives across a range of projects, the PMU should facilitate a programmatic approach.
- **Monitoring and reporting:** This includes management of a monitoring database and preparation of all necessary reports to both the Council and to the MIGMU.
- **Evaluation:** This includes the assessment of the impact of the MIG programme.

2.9 Summary

A noticeable progress has been reviewed in project management of development projects in South African government with specific focus to municipalities and it exhibits that overall capital grant performance that has been measured over three financial years are not only a reflection of lack of capacity at the local government sphere but also an exhibition of impact that is characterizing poor service delivery, inferior quality of projects, costs overruns and schedule overruns. The table below reflects on MIG performance of three (3) financial years:

FINANCIAL YEAR	ALLOCATED	SPENT	%SPENT	NOT SPENT
2017/18	R 48 047 716 000	R 45 124 244 000	94%	R 2 923 472 000
2018/19	R 48 612 477 000	R 45 447 649 000	93%	R 3 164 828 000
2019/20	R 50 455 328 000	R 46 461 306 000	92%	R 3 994 022 000
TOTALS	R 147 115 521 000	R 137 033 199 000	93%	R10 082 322 000

Table 5: Summary of MIG grant performance (National Treasury Grant performance report, 2020)

If you consider amounts not spent are equivalent to the total budget received from the fiscal by one of the biggest metropolitan municipalities in South Africa and can considerably finance mega programmes that are imperative to survival of countries economy.

There is no dispute that projects within local government sphere have and should have a longer-lasting and dynamic impact in the livelihood of communities within the jurisdiction of the municipalities, and unlike organizational projects were they endeavour to achieve either operational improvement or enhance stature of the organization in order to have a competitive benefit over their counterparts, municipalities projects endeavours to achieve more social impact and service delivery beneficiation for communities within the areas municipalities administers.

Project Management is a critical vehicle in any local government sphere to ensure that projects that enhances service delivery are delivered on time, within budget, with desired quality and the capacity and resources required are deployed to administer all other constraints. This then required a structured approach to capacitate and constitute a formidable team to render these services.

Project Management Institute has always looked at improving the framework in what should be the guidance to PM practitioners around the world and a very practical consideration was the formation of suitable project management knowledge areas that will be key activity areas to achieve and conform to the entire project life cycle.

It is safe to say that the field of local government employs or adheres to sustainable project management, which is defined as the planning, observing, and managing of project delivery and support procedures while taking into account the environmental, social, and economic aspects of the resources, processes, deliverables, and effects of the project's life cycle. The goal is to maximise benefits for stakeholders in a

transparent, equitable, and moral manner that involves proactive stakeholder participation (Silvius, 2021).

Whilst there could be many types and formations of the Project Management Offices, organizations and institutions are encouraged to cut a pattern from the existing frameworks and customize their Project Management Office in accordance to what will sincerely benefit their performance and anticipated intentions of the organization, it is very important to also measure the emerging trends and incorporate them in the development of the office.

This review of the Project Management Office framework literature, has exhibited that the baseline set for organization is in customization of the PMO, it does not lose the key principle guidelines that defines each of the office types chosen and which environment it suits and more importantly if you consider in our case-study, as much as that municipalities are unique entities formed within the same legislative policy and structured arrangement, however, they operate in different environments that then requires a specific and dynamic consideration of what will crystallly work for them.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The exact steps or methods used to **identify, select, analyse, and evaluate data regarding a topic** are known as research methodology (Potgieter, 2017). Giving a thorough explanation of the research methods employed in the study is the aim of this section. There were discussions of various alternative research approaches in this chapter. The researcher's decision to employ a qualitative research approach as opposed to a quantitative approach is supported in this chapter. The research method describes the information or the procedure for gathering and analysing data.

The research methodology dichotomises the contributing factors to challenges experienced by the PMO's of municipalities that hinders achievement of project goals. It further applied usage of themes that measured capacity, instruments or tools utilised by the PMO's, external and internal environment influences, and provided suggested improvements. The outcome of this chapter provided the method, inspiration, and the structure outline of the research.

3.2 Research Methodology

3.2.1 Comparison between Qualitative and Quantitative

Kumar (2005) argues that research can be done using a variety of approaches, such as experimental, descriptive, qualitative, and quantitative approaches. Typically, experimental methods are conducted in lab settings to minimise external impact. Kumar (2005) illustration was that while in the laboratory, the researcher can apply a substance on a selected entity and then observe the reaction to analyse the effects. Descriptive research relies on observation by examining the situation in order to establish what can be anticipated to occur in the given situation. **Quantitative and qualitative** methodologies are the most popular approaches in the project management research field. The two approaches differ fundamentally in the research purpose, methods of inquiry and data collection strategies (Kumar, 2005).

The table below illustrates the differences and approaches between the two methodologies of research:

Table 6: Comparison of quantitative and qualitative methods (De Vos et al., 2011)

Qualitative Research Method	Quantitative Research Method
Epistemology: Rooted in phenomenology. Purpose: Detailed descriptions of social reality construction. Methods: Inductive logic.	Epistemology: Rooted in positivism. Purpose: Testing predictive and cause effect hypothesis about social reality. Methods: Deductive logic.
Suitable for study of relatively unknown terrain, seek to understand the phenomena. To understand the exact words, the participant's natural language is utilized.	Suitable for a study of phenomena which are conceptually and theoretically well developed. Concepts are converted into operational definitions. The results appear in numeric form. Reported in statistical language.
Research Design: Unique and flexible. It develops during research process. Steps to be followed are fixed. Design cannot be replicated. Data: Information richness of settings determines the source, modification of observation to enrich the understanding.	Research design: Design can be replicated, and it is standardized according to a fixed methodology. Data: Systematically obtained in a standard manner.
Unit of analysis: Focuses on wholeness and concentrates on interlinks across elements.	Unit of analysis: Variables are made up of separate and often disparate elements.

Based on the information in table 6, this research applied inductive logic method by considering practical reality and not utilising predictions, it also applied a flexible research design and utilised the exact context of participants to understand the phenomena. It therefore originates on the lineage of the qualitative method.

In the classification of the Quantitative and Qualitative methods (Newman and Benz, 1998) compares the two methods and agrees with comparison by (De Vos et al., 2011) that qualitative research draws its basis from real-life context or situations and the researcher's assumptions are suspended and the language of the respondents is valued and utilised. Qualitative research method also does not focus on surveys

and interlinked variables as it is the case with quantitative methods but focuses on facts that affects the situation.

The goal of qualitative research methodologies is to gather and analyse non-numerical data from participants through written or spoken language. It is regarded as the most challenging approach and is also focused with comprehending and characterising the social aspects of the worlds. This process is difficult and time-consuming (Kumar, 2005).

A quantitative method involves collecting and analysing numerical data. Numbers, percentages, probabilities, values, variances, and ratios are all used to express quantitative data. It starts with a theory or hypothesis, then draws logical conclusions. Data analysis then proves the variance in the circumstance, phenomena, or issue without quantifying it (Kumar, 2005).

Table 7: Depiction and comparison between Qualitative & Quantitative Research (Source: Komentar, 2021)

QUALITATIVE RESEARCH	QUANTITATIVE RESEARCH
Interviews	Surveys
Focus Groups	Secondary Data
Ethnography	Observational Research
Case Studies	Experimental
Literature Review	Content Analysis

The interpretative paradigm that underpins qualitative research stresses the significance of personal experiences and their interpretations for each individual. Thus, a researcher's subjective opinions on a given circumstance have a significant impact on the study's findings. While quantitative data documents people's perceptions and emotions, qualitative data focuses on people's feelings and emotions (Komentar, 2021).

Considering the comparison above in table 6, and the purpose of the research in responding to the research question, this research used the Qualitative method since it draws its basis from real-life context and situations, and it further sought to

focus on wholeness and concentrates on interlinks across elements as well as answering the research question.

3.2.2 Data collection

a) Primary data collection in qualitative research tends to utilise a qualitative interview in which interviewees are given a window of opportunity to ventilate about their experiences, views, and knowledge about the research subject. Instead of a rigid approach, a level of flexibility in the range of topics is allowed so that adjustment can be effected during the study. Settings, events, or interviewees are purposively sampled, which means guided by the researcher's need for information (Hox and Boeijie, 2005).

The research employed qualitative method analysis rather than quantitative analysis, which is primarily driven by data and not very dependent on the researcher (Bhattacharjee, 2012). The use of a qualitative technique greatly depends on the researchers' ability to integrate and analyse information as well as their familiarity with the subject matter. Rather than objective facts, it is based on the opinions of the sample population. It calls for "sense making," or comprehending a phenomena (Bhattacharjee, 2012).

Because the targeted research participants are a small sample, the researcher arranged to interview the participants through face-to-face interview and through a virtual medium (zoom or Ms Teams) due to COVID-19 protocols and remote interaction promotions and in both interactions, a request to record the sessions was be asked from the participants by the researcher to promote confidentiality and privacy.

b) Secondary data collection is when research is utilising information from data collected by other researchers such as official statistics, administrative records, and surveys. The original author must always be acknowledged in the work and research must always recognise the original author. Most imperative decision when utilising secondary data in qualitative research is reusability of the data available as this can either affect the significancy of the study if matters are not done correctly (Silverman, 2000).

For this research, participants were selected based on understanding of the project management framework and applicable guidelines in the field of project management (which is the secondary data that will be referred to as part of this study), whilst they are acknowledged to be providing required insight of the impact of guidelines in their running/administration of the project management office within the municipality, furthermore, and also providing a view of what could be the influence of both internal and external environment factors. They were required to provide recommendations that were factored in the data analyses and recommendations of improving project management office framework and improve guidelines issued by the Department of Cooperative Governance (DCOG) to MIG receiving municipalities.

c) Supplementary data collection

The supplementary data refers to any information outside the parameters of primary and secondary data collection methods that can assist with responding to the research question and attainment of research objectives.

3.2.3 Methods of research (Komentar, 2021)

This part outlines the study's design and how it aims to address the dissertation's research topics. The next sections provide a description of the research instrument that was selected to collect the data required for analysis. An outline of the sample selected for the study and a description of the distribution strategy used to provide the research instrument to the sample are presented after this. It is possible to notice and document qualitative data. There is nothing numerical about this type of data. These kinds of data are gathered using the following discussed techniques:

a) One-to-One Interviews: Because of its individualised approach, it is one of the most often utilised data gathering tools for qualitative research. Direct, one-to-one data collection from the interviewee is done by the researcher or the interviewer. The interview may be conversational in nature, informal, and unstructured. The interviewer typically lets the interview flow determine which open-ended questions to ask. This allows the interviewer to ask most of the questions at random.

b) Focus groups: This is done in a group discussion setting. The group is limited to 6-10 people, and a moderator is assigned to moderate the ongoing discussion. Members of a group might share anything, depending on how the data is arranged.

For example, when doing research on track runners, a researcher will select athletes who are or were track runners and possess adequate expertise in the field.

c) Record keeping: This approach uses pre-existing, trustworthy documents and related information sources as the data source. The new research can make use of this data. It's like visiting a library. There, one can read books and other reference materials to gather pertinent information for the study.

d) Process of observation: This approach of gathering qualitative data involves the researcher entering the participants' environment, closely observing them, and taking notes. This is referred to as the observational process.

In addition to taking notes, additional documentation techniques like audio and video recording, photography, and related techniques can be applied.

e) Longitudinal Studies: Over a lengthy period of time, this data gathering approach is applied repeatedly to the same data source. It is an observational study methodology that lasts for several years, or even decades. Using an empirical investigation of participants that share characteristics, this data collection strategy seeks to identify correlations.

f) Case studies: Using this approach, case studies are thoroughly analysed to collect data. The method's adaptability is exemplified by its ability to analyse subjects of varying complexity. The method's strength lies in its careful application of a combination of one or more qualitative data collection techniques to make conclusions.

Qualitative data in statistics is also known as categorical data – data that can be arranged categorically based on the attributes and properties of a thing or a phenomenon.

In summary, the current study is inferred on combination of a single case study and conducting one-on-one interviews with subject matter participants. It further used the case study research approach with a focused municipality to confine the method of study and data collection and also used structured interviews as a form of collecting data to avoid open-ended questions and responses through an unstructured interview method.

3.2.4 The Case study Method

According to Sturman (1997), a case study is a generic word used to examine a person, a group, or a phenomenon. As a result, a case study is a comprehensive description of a single instance and its analysis that includes describing the case and its events as well as detailing the method by which these attributes were found, or the research process itself (Mesec, 1998).

A case study is a comprehensive examination from several angles of the intricacy and distinctiveness of a specific project, policy, organisation, programme, or system in a "real life" setting (Simon, 2009). Thomas (2011), classifies singular case studies as follows:

- Retrospective case studies: The most basic kind of research; it entails gathering information about any kind of historical occurrence.
- Snapshot studies: The case is being investigated within a specific time frame, such as a current event, a person's day in their life, a journal, etc. The chronological juxtaposition of events, be they over a month, a week, a day, or even as brief as an hour, helps with the analysis.
- Diachronic studies: They are comparable to longitudinal studies and change over time.
- Nested studies: Involve the comparison of elements within one case.
- Parallel studies: All of the cases are ongoing and being investigated simultaneously.
- Sequential studies: The cases occur repetitively, and it is assumed that whatever occurred previously or during the interim will have some bearing on the subsequent episode.

In order to determine variables, structures, forms, and orders of interaction between the participants in the situation (theoretical purpose) or to evaluate work performance or development progress, this case study portrayed and examined a specific matter or case. A single case study was selected for this research report.

3.2.5 Unit of analysis

This can be characterised as a collection of source materials from which the sample is taken or chosen (Turner, 2003). This describes how specific individuals of the

target group will be selected to participate in the survey's interview process. It ought to statistically represent the intended population (Turner, 2003). It is difficult to study the entire population because of feasibility and cost constraints, and hence a sample must be selected which is a representation of the population interest and be accessible (Bhattacharjee, 2012). The findings drawn from the sampling frames could not be fully representative of the population as a whole, making it difficult to extrapolate the findings to the population (Bhattacharjee, 2012).

One technique that qualitative researchers frequently use to describe their analytical approach is to write that they analysed a transcript, fieldnotes, or another textual source line by line (Bradley, Curry, & Devers, 2007). The unit of analysis for this research report was the recording transcripts from the interviews with the research participants who included the following:

- 2 X KSD senior managers at engineering department,
- Department of Cooperative Governance (DCOG) Eastern Cape coordinator,
- Municipal Infrastructure Support Agent (MISA) - KSD Technical Support,
- Provincial Treasury – KSD responsible technical person,
- Provincial COGTA – KSD responsible person,
- South African Local Government Association – Technical Personnel

The municipal manager of KSD LM consented to the research study and referred the researcher to the municipal Department of Engineering Services to facilitate for availability of municipal participants for the discussions/interviews. Due to possible hostility in municipalities, the questionnaire was forwarded to the municipal participants upfront so that it can prepare and ease up any fears of disclosing municipal confidential information.

The focus of the research instruments is ensuring that the outcome of the data collected addresses the challenges and issues identified in the literature review.

A sample size of maximum 10 respondents was found to be a suitable and sufficient to be able to analyse the data.

3.2.6 Data Analysis Technique

After the completed questionnaires were received, data analysis commenced. The researcher examined and evaluated the responses to determine if the outcomes were meaningful and not the result of chance.

3.2.7 Research limitations & constraints

- a) Reluctance to participate in the research by participants due to what is viewed as sensitive, confidential and privacy of information in the municipality space and this could lead to missing out on vital contributing information,
- b) Schedule constraints to collect data as some participants would not always be available at a desired time period of interviews,
- c) Limitation of information sharing by participants fearing that it will make them subjected to victimization or targeted victimization of participants once the report is finalized,
- d) Lack of knowledge management and information at the municipality to verify data collected and reference analysis of the report,
- e) External stakeholders may have widely different views and provide different responses to that of municipal personnel and cause a wide outcome to the results of the research,
- f) Non availability of some respondents. The quality and relevance of data obtained from some respondents might not be helpful to the study.

3.2.8 Ethical consideration taken during the research.

Professionals are guided by codes of ethics, which have changed over time. In order to adapt to changing beliefs, expectations, and demands in professions, ethical considerations are essential (Kumar, 2005). The study was guided by the University of Cape Town academic research ethics. The researcher adhered to the University's policy on research guidelines. The researcher sought an ethics clearance from the Dean of research in the University of Cape Town (**Item 1 of appendices**). Written permission to conduct the research was given by the University and also was received from the municipality accounting officer (Municipal Manager) (**Item 2 of appendices**).

The investigator made sure that participant and institution-related ethical concerns were met. The investigator made certain that the subjects were protected by taking the necessary precautions. This was accomplished by following moral guidelines and rules pertaining to human subjects research. Ethical principles included confidentiality, respect of respondents' autonomy and consent in participating in the study. Moreover, seeking consent is crucial. "The researcher made sure that participants understood the kind of data that was required of them" (Kumar, 2005). Participants were not misled or harmed by the researcher. It was essential to inform them about the study's purpose in order for them to freely and voluntarily decide to participate. Furthermore, bias on the part of the researcher is unethical. Bias occurs when there is a conscious effort to conceal the results of the study or to draw attention to an imaginary or nonexistent issue. It was required of the researcher to use a suitable approach when carrying out the investigation. Using a procedure that was not appropriate for the study is unethical (Kumar, 2005). It is also deemed unethical to misreport research findings and alter them to further the goals of the study.

A consent letter was sent to the Accounting Officer (Municipal Manager) of King Sabatha Dalindyebo Local Municipality to allow us to conduct research utilizing his institution and the request outlined key variables for the research, outlined the problem statement and magnitude of challenges that the research seeks to address.

The consent letter to the municipality outlined the requisite skills and personnel required as part of the research process from the both the Engineering Department and particularly from the Project Management Unit and the participants were deemed professionals in their rights and would be able to provide meaning insight to the expected research outcomes. Therefore, the research approach or data collection method focused on one-to-one interview with the selected participants in the municipality who are experts in the field of project management. After detailing the intention of the study, a request was sent to the municipal manager, and it read as below:

"Please provide me with permission to interview as part of my studies the following personnel within your municipality:

- *Technical Director: Engineering Services*
- *Project Management Unit (PMU) Manager*

And external stakeholders who are the experts in local government and has a direct effect on the compilation and implementation of the PMU Guide (2018) in the municipality were also engaged and interviewed as participants to the process and these external stakeholders were deemed to have a full and a direct understanding of KSD Local Municipality environment to give a specific account. The nominated external stakeholders are:

- Department of Cooperative Governance (DCOG) Eastern Cape coordinator,
- Municipal Infrastructure Support Agent (MISA) - KSD Technical Support,
- Provincial Treasury – KSD responsible technical person,
- Provincial COGTA – KSD responsible person,
- South African Local Government Association – Technical Personnel

The research tool was forwarded to the selected project management professional in the municipality and other project management professionals in the sphere of national government and private service providers doing business with the municipality (COGTA, MISA, provincial COGTA, National Treasury, etc.) including stakeholders such as project managers, project management team members, senior management, clients and consultants. The involvement of these different stakeholders provided varying perspective to the research, as different people have different perception of how the composition of the project management office within a local government sphere should be.

3.3 Summary

This chapter has exhibited that qualitative research respects the study participant's experience and can provide insightful information on the environment and circumstances in which project management offices function. To uncover the challenges experienced within the project management offices and providing recommendations that will create efficiencies to achieve project goals, Qualitative research was relevant to base the research on real-life context and applying inductive logic.

The research method applied commenced with literature review and analysed existing theories on PMO frameworks and analysed the applicability of the current

study context through comparison to the existing literature and, the intention was to link the study to elements of success factors to improve project performance and delivery. It further elected a case study to one municipality to confine and contextualise the method of study and data collection, this enabled the structured interviews as form of collecting data.

The researcher's understanding of the local government environment also necessitated use of direct observation to gather available data on performance of municipalities and also through direct observation of participants responses.

CHAPTER 4: RESEARCH RESULTS and ANALYSIS OF RESULTS

4.1 Introduction

The research results will provide informative description and results presentation of the research conducted during the interview of the participants, it will also analyse the inputs provided by the participants in addressing the research question and providing solutions in attempting to analyse and respond to the phenomenon outlined in the study. In qualitative research, your results might not all be directly related to specific hypotheses. In this case, you can structure your results section around key themes or topics that emerged from your analysis of the data and that is the approach undertaken herewith.

Each theme starts with general observations about what the data showed. It follows these discussion influencing opinions:

- Recurring points of agreement or disagreement
- Patterns and trends
- Particularly significant snippets from individual responses

The chapter is organised as follows:

- it starts by giving a summary of the participants' demographics and then a detailed discussion of the findings is given.

- follows the thematic discussion and analysis:

- The capacity challenges of PMO's within Local Municipalities
- Project management skill requirement of Project Manager/s working in the PMO within local municipalities
- Consideration of required tools of trade
- Impact consideration of social & environmental effect.
- Provide or recommend improvements that will enhance efficiencies of project management office and attainment of project goals at municipalities.

4.2 Case Study

4.2.1 Participants Demographics

The research is applied to King Sabata Dalindyebo Local Municipality covering the towns of Mthatha, Coffee Bay and Viedjiesville within OR Tambo District Municipality in the Eastern Cape. The respondents will reflect on the effectiveness of the Project Management Units to render service delivery under the recommended guidelines/framework as provided by National Treasury and COGTA for MIG receiving municipalities. The study sample is discussed, and the instrument distribution method described.

Municipal Manager was requested to make available the technical personnel composing the Project Management Unit and the request focused on the following personnel: Technical Director: Engineering Services, Project Management Unit (PMU) Manager, 2 X Project Managers, which in total was looking at 4 participants from the municipality and utilisation of Provincial and National government supporting stakeholders to make the target to 10 participants.

The researcher also engaged the custodian department that all local government policies, administrative processes, and responsibility of PMU guidelines falls with, which is the Department of Corporative Governance and Traditional Affairs. The research utilized six names of Senior Managers from COGTA, Municipal Infrastructure Support Agent (MISA) which is an entity of COGTA, South African Local Government Association (SALGA) and Eastern Cape Provincial Treasury with intimate knowledge of KSD Project Management Unit and general understanding of Local Government capital grant framework and this provided an opportunity to realize the objectives of the research despite the challenges and limitation of scope by the municipality.

Within the municipality, the research participants that were able to provide interviews were from the Engineering department which is also responsible for Project Management Unit. The total coverage of research participants were able to engage eight out of the ten targeted population thereby providing an adequate (80%) balanced representation of data in general. Even with challenges of non-availability of some of the targeted municipality (King Sabata Dalindyebo LM) personnel, a

MISA	Technical Support to municipalities	20 yrs.	15 yrs.	50 – 100	2-5 yrs.	Yes (ECSA)	NQF 9 (MSc PM)
SALGA	Technical Support to municipalities on Water and Sanitation provision	12 yrs.	10 yrs.	230	2-5 yrs.	Yes (ECSA)	NQF 8 (Honours)
MISA	Programme support	26 yrs.	15 yrs.	50 – 100	2-5 yrs.	Yes (ECSA)	NQF 9 (MEng)
MISA	Project support	14 yrs.	10 yrs.	50 – 100	2-5 yrs.	Yes (ECSA)	NQF 7 (B-Degree)
King Sabata Dalindyebo LM	Engineering functions at KSD	20 yrs.	11 yrs.	50 – 100	2-5 yrs.	No	NQF 7 (B-Degree)
King Sabata Dalindyebo LM	Project Management Unit functions at KSD	14 yrs.	10 yrs.	50 – 100	2-5 yrs.	No	NQF 7 (B-Degree)

4.3 Main themes identified.

4.3.1 Theme 1: The capacity challenges of PMUs within Local Municipalities

4.3.1.1 Oversight of the projects by the Project Manager (to many projects).

All eight of the respondents agreed that there is inadequate capacity to manage scope or magnitude of capital infrastructural projects, with six of the eight respondents agreeing that the span of control at a given period is unmanageable. The one respondent that referred to adequacy of capacity only considered the view that the recommended number in the PMU guide is employed by municipality however did not consider the span of control in administering projects.

RS 1: *“I believe it is adequate as we do have the warm bodies as recommended in the PMU Guidelines”.* **RS 2:** *“For PMU’s a structure requires a consideration that will provide more effectiveness as in most municipalities, one project manager is managing over eight (8) projects, and, in that situation, it is untenable to create project beneficiation and get value for money in the projects”.* **RS 3:** *“The capacity is not sufficient both in numbers and skills available”.*

4.3.1.2 No funds available to fund the PMO activities

Five out of eight respondents agreed that there is not sufficient funding available in the grant application to fund the functioning of the PMU.

RS 8: *“PMU capacity relies on a small margin made available by the grant transferring officer and this compromises how PMU’s should be insourced thus affects the capacity as well”.*

4.3.1.3 No sufficient number of support staff (technical) to assist the PM

All eight respondents agreed that there is not sufficient staff to assist with the technical tasks in the PMU.

RS 2: *“PMU capacity needs to be given more technical resources in order for them to manage projects effectively.”*

4.3.2 Theme 2: Project management skill requirement of Project Manager/s working in the PMO within local municipalities.

4.3.2.1 Lack of relevant skills

Six out of eight respondents agreed that the PMU’s do not have personnel with relevant skills to administer capital infrastructure projects, whilst two respondents highlighted external issues that results in “unworthy” appointments within PMU’s (a discussion included in theme 3).

RS 1: *“The issue on the adequacy and sufficiency might relate to what skills do PMU’s have, do PMU’s have the requisite skills to carry the mandate particularly project management skills?”* **RS 3:** *“The capacity is not sufficient both in numbers and skills available”.* Similarly, **RS 6:** highlighted that *“there is imbalanced structure of the PMU to render proper project management required for all their projects, i.e. KSD LM PMU has only 2 qualified project managers and utilized additional two engineering technicians as supplementary to the available project management team and in total, they are administering about twenty-six (26) projects registered on the Project Implementation Plan of the municipality with various degrees of complexity and that proportions the ratio of about six and half (6.5) projects administered by a single project manager”.*

4.3.2.2 Unqualified staff appoint to key position without the relevant skills

Five out of eight respondents agreed that the personnel appointed to the PMU do not have the relevant skills to undertake the projects.

RS 5: *“Most municipalities have somehow made unworthy appointments to unqualifying or unskilled personnel at Project Management Units and this creates lack of direct and desired level of effort given in the administration of projects by project managers and the entire project team members”.* **RS 3:** *“When an organization hires unqualified candidate, it starts a whole cycle in which organization faces so many problems and most important the waste of money and time it causes to the organization.”*

4.3.2.3 Increased reliance on external service providers by municipalities due to lack of skills

Seven out of eight respondents agreed that heavily reliance to external service providers can be a one of the hindrances to PMU's performance deficiencies as it reduces the costs that were meant for implementation of projects through work that could have been done internally.

RS 3: *“When an organization hires unqualified candidate, it starts a whole cycle in which organization faces so many problems and most important the waste of money and time it causes to hire external service providers. Most municipalities rely on consulting services in order to render professional work and that is seen as replacement capacity to deficiencies at PMU.”* **RS 7:** *“Consultants costs are taking up a lot of municipal grant allocation and this reduction is evident to the final output of the project in an adverse way”.*

4.3.3 Theme 3: Consideration of required tools of trade.

4.3.3.1 Skills aligned to tools of trade.

All eight respondents agreed that the PMU's do not stay abreast with current development in the field of project management and the use of the technology available to assist managers run projects.

RS 7: *“It is imperative to keep abreast with latest form of technologies that assists in the administration of projects and assists to full comprehend the depth of resource utilisation and unfortunately the municipality has a limitation with acquisition and utilisation of engineering and project management software”.*

4.3.3.2 Technology required to assist the PM is not available

All eight (8) participants emphasized the need for utilization of project management related software to enhance capabilities of the PMU and improve on functionality.

RS 5: *“The municipality has limited or no use of project management and any other technical software and rely mainly in the basic provision that excel spreadsheet for information and a paradigm shift is required that they procure software packages and equip the PMU through provision of training so that they can be proficient users”.* **RS 4:** *“Utilization of software is a necessity that municipalities are missing to adopt and utilize for their benefit. Software utilization assist in knowledge management, sharing of data and creating of project baseline data”.*

4.3.3.3 No IT staff to support the Project Manager

Seven out of eight respondents agreed that the PMU’s do not have the technical staff to assist the PM manage projects.

RS 6: *“Whilst the provision for acquisition of technological viable tools of trade and provision of relevant training to existing project management personnel, however it is equally important to have complimentary ICT expertise that are to be part of PMU’s or at least /support PMU’s on more semi-permanent basis and internal utilization will elevate PMU’s of municipalities with efficiencies and effectiveness in the delivery of projects and it will further reduce reliance to consultants”.*

4.3.4 Theme 4: Impact consideration of social & environmental effect

4.3.4.1 Social and environmental effect

All eight (8) research participants emphasised the role of social facilitation in social infrastructure projects as administered by PMU’s, and further reiterated the key principles of ensuring that projects are undertaken within the parameters of beneficiary expectations.

RS 1: *“PMU Guidelines recommends utilization of Social Facilitators or Community Liaison Person to be the link or an oversight person in a project that creates a communication plan for all stakeholders and ensure that lines*

of responsibilities and each stakeholder role is facilitated through the project manager and in this way, it will create a suitable project environment and eliminate any political interferences". RS 8: "Municipalities have a functional office that can drive and deal with issues social aspects and environmental atmosphere where projects are being implemented and the office of the council speaker should drive that aspect, however in the same breadth, it should not open adversity of interference to project management".

4.3.4.2 Political Interface or Governance

All eight (8) research participants when they were asked about effect of political environment in municipalities to project management, cited that there is immense interference by municipal politicians to administrative processes (be it how services are procured, appointment of project team members, etc.).

. RS 1: "Politicians set up key positions for personnel that will align to their mandate and manifesto, and regardless of the suitability of qualification, level of skill and experience of the candidates, if they fit the purpose to align their action in their work to political mandate, they get deployed and often this creates another dilemma of placing unskilled, inexperienced personnel in key positions." RS 6: "Politicians push their own agenda in prejudice of projects and what is planned is not always what is delivered due to political influence.."
RS 4: "Political interference have a huge effect to completion of projects, political instability creates unstable councils results in municipalities not spending their infrastructure grants as a result of non-approval of budgets, it factors on SCM interference and render administration not effective." RS 7: "The political arm of the municipalities always has a direct control of all activities and decisions in the council and this creates an environment where powers and functions cannot be separated. The cause and effect of the interference is that it bounds or confines power to be political."

4.3.5 Theme 5: Provide or recommend improvements that will enhance efficiencies of project management office at municipalities.

4.3.5.1 Upskilling with capacity building programmes required.

All eight respondents agreed that with structured capacity building programmes, PMU's could realise exponential growth in skills and technique thus flows into improved functionality of PMU's.

RS 2: "If focus is on existing human resource at PMU's then up-skilling through rigorous training programmes will assist and moreover a restructuring of resources with recruitment of capable and experienced project team members."

4.3.5.2 Reinforcing grant conditions to increase number of personnel with PMU's.

Six out eight respondents agreed that the refined conditions of the infrastructure grant must stipulate and regulate personnel working in the PMU's of the municipalities

RS 3: "A particular focus for enhancing capacity of project management units must be placed on reinforcing infrastructure grant conditions by placing more mandatory personnel requirements for any PMU beyond what is on the guidelines."

4.3.5.3 Attract seasoned staff to the PMU's.

All eight respondents agreed that the experience levels of PMU personnel require to be very well groomed and personnel that have general understanding of technical, regulatory matters and utmost project management skills.

RS 7: "PMU personnel should be made up of seasoned project management practitioners in the local government sphere that fully understands requirements but also COGTA should enhance the role of PMU's by providing more resources on basis of the value and complexity of projects municipalities are administering and therefore upskill and provide tactical support to improve capabilities of PMU's".

4.3.6 Supplementary data.

The Auditor General's report,

Maluleke (2021) referred to a culture of unskilled personnel at local government that is caused by political appointments that dominates governance and technical deficiencies at municipalities. The report further highlighted a dependency by municipalities to consulting services whilst they have dormant personnel within municipal structure (Maluleke, 2021).

Chabalala (2021) reported that the office of the Public Protector has been investigating claims that some of the officials in the Ditsobotla Local Municipality within the North-West province were given top jobs without the necessary skills, qualifications, or expertise, and continued that some high-ranking officials at the municipality apparently only have Grade 11s and matric and other claims are that jobs were being issued to family members. He further states that the Acting Director: Community Services, Internal Audit Manager, and Civil Services Manager are some of the people who were allegedly employed with just a matric certificate. Security Services Manager, Water and Sanitation Manager, and Senior Records Officer at the municipality allegedly only have Grade 11. The complainant also claims that some officials who were employed without the necessary skills and qualifications, includes wives, brothers, siblings, and family friends of some councillors. One councillor's wife, sister, and brother were allegedly given jobs within the municipality. The sister was allegedly appointed as an Eye Test Operator despite not relevant qualifications and competencies.

This support that PMI (2013) emphasis the point that project managers must be given not more than two (2) projects at a given period to administer so that it can improve their focus and quality of attention rendered to success factors of the projects.

Auditor General of South Africa simple issues an adverse audit outcome for all funds spent irregularly and wasteful expenditure is one of the sore points at local government. You can't expect a high quality of work from an unqualified candidate. The work done by an unqualified candidate never meet the expectation and this cause money losses, as well as reputational damage for municipalities and communities who suffers lack of service delivery and other interested stakeholders to the municipal affairs. Hiring an unqualified candidate is a risk where lots of things

are on the stack because the person is not qualified for the job, and you can't expect top quality work from someone who is not even suitable for the job."

4.4 Discussion of the findings

4.4.1 Theme 1: The capacity challenges of PMU's within Local Municipalities

The major challenge highlighted is the span of control to administer capital infrastructure projects in the PMU set-up as it is demonstrated by respondents as a primary focus point to address capacity constraints. The challenge exhibited by the respondent is lack of attention given to projects by the project managers due to overpopulated projects they are handling or administering and compromises project beneficiation. Most municipalities, assigns project managers with multiple number of projects that they are required to administer at a given period (within a financial year), as most of them handle a lot of projects (at an average number of 5 projects per single project manager in a municipality) and this creates lack of prioritisation and reduces focus given to a particular project. The PMI (2013) recommends that regardless of the complexity of projects, a maximum number of projects that is recommended for a project manager to administer at one instance should not be more than two projects and this will enhance effort for a project manager to functionally attentive to projects under his/her administration.

The respondents highlighted the need to balanced allocation of resources so that there is equivalent attention to project outcomes and oversight given to produce desired quality outcomes.

All research participants agreed that the major challenge is on resourcing of the PMU's in municipalities and how the MIG PMU guideline (2018) recommends the resourcing of the municipal PMU's and therefore a paradigm shift will be required that focuses on revised recommendations to form suitable teams that consists of all required project members and provide for expert services within the project teams. As the PMU guideline (2018) within the MIG framework advises that municipalities must utilize 5% of their annual allocation for operational costs and structural functioning or setting up of PMU's however how the PMU structure is formulated is left entirely to a municipality and this create ambiguity and the constraints that were highlighted in the case of King

Sabata Dalindyebo LM and many municipalities are having the similar challenge that ***requires the framework to be expanded and create a mandatory structure of PMU that is made a condition for municipalities to receive infrastructure grants for projects***. The conditions must be enforced and monitored for compliancy.

There is an increased reliance on external service providers by municipalities due to lack of skills, creates a very fertile opportunity for interest of money flowing, and the politicians as much as they are prohibited to interfere in the operations and with any procurement process as derived in the Municipal Finance Management Act, but it is actually a proven theory that municipal politicians have serious interest in the recruitment of PMU personnel, and in appointment of service providers that will work in the infrastructure projects. This deployment and interference arrangement creates a culture of non-delivery, inferior quality of projects, lack of stability and poor work environment amongst other things.

4.4.2 Theme 2: Project management skill requirement of Project Manager/s working in the PMO within local municipalities.

62% of participants (which is six out of eight) highlighted that the qualification and professional affiliation or lack thereof of the project managers at KSD LM, which is also a national norm is a contributing factor to performance of project management units. This is exacerbated by inexperience project managers that are appointed or when they have sufficient experience, lack of refreshing training aligned to the continuous development and latest methods are not undertaken.

The challenge caused by lack of relevant skills exacerbates the poor performance by PMU's and eventual compromises how project planning, project governance and project management is applied to infrastructure projects by PMU's. The danger of using unskilled staff is that it contributes to the deficiencies that eventually causes defunct municipalities that do not have any prospects of growth and economic development and as the (Chabalala, 2021) article continues, it refers to "Ditsobotla is the same municipality where Clover had to shut down its operation due to lack of basic services and move its plant to KwaZulu-Natal."

The respondents confirmed a dynamic understanding that projects are unique endeavours (PMI, 2009) and as such, requires unique skill-set for purposes of creating project success and steering project resources towards achieving project goals.

To deliver quality projects on time and within budget is dependent on the annual budget (MIG Grant) received by the municipality to deliver infrastructure projects and human resource capacity at the Project Management Unit (PMU) whether it has right skilled personnel and is sufficiently structured and resourced to cater for the demand.

4.4.3 Theme 3: Consideration of required tools of trade.

A challenge highlighted in the sub-theme by respondents is that municipalities are not acquiring any tools of trade to assist them to improve but rather at most times outsources the project management services to consulting firms as a consequence of lacking project management skills, capabilities, and capacity. Even in the event of consultants providing utilization of software in a certain project, it becomes difficult for municipalities to utilize due to compatibility of services and software.

Although research participants provided different proposals as to what tools of trade can be beneficial in the enhancing effectiveness and efficiency of Project Management Unit at King Sabata Dalindyebo Local Municipality and other municipalities in-line with MIG PMU guidelines as issued in the framework, they unanimously agreed on utilization of project management software as a standard practice for knowledge management and providing guided directive in the administration of projects within municipality. Software utilization does not transfer ultimate project management control from the project manager to the software but it enhances and simplify some processes and serves as the consistent tool to keep check and balances attended to by the project team members, it serves as a reminder of activities to be undertaken and enhances oversight role very well.

Furthermore, for the recommended software utilization as a standard feature, some participants utilized this section to address or rather emphasis on the type of skills and experts that are required to be part of project management

office/units at local government/municipalities, as stated that no tools can replace the human touch required in projects. Therefore, participants proposed resources that must be standardised as part of the project structure in municipalities such as contract management expert, project accountant, project planner, project cost engineer, social facilitator and project administrators.

4.4.4 Theme 4: Impact consideration of social & environmental effect.

Socio-economic challenges as defined by high unemployment rate, huge infrastructure backlogs, low education rate, overwhelming unskilled labour, infrastructure grant reliance and, etc. affects project governance which in turn affects overall outcomes and performance of PMU's. Therefore, whenever there is economic activity in a form of a project, a well-defined process that is on premises of stakeholder engagement must be on grounds of informed coordination and within PMU's, it is emphasized that social facilitation is a vital component to project success.

Based on the offering of the Municipal Structures Act (1998), which defines roles and responsibilities of all stakeholders in the municipal value-chain. Harmony amongst the channels of political principals and administrative arm of municipalities creates an environment that conducive for creation of project benefits as planned through strategic planning document (Integrated Development Plan) of the municipalities.

It is detrimental to place too much on politicians for operational issues of the municipalities as this tends to create a hostile environment for technocrats and thus adversely affects planning and delivery of projects. Considering those political councillors at municipalities, through their political manifesto's (what they seek to achieve within a their term of office), policy regime (structure and regulatory framework of their key priority areas) and constituency beneficiation. Moreover, MIG is one of the biggest government grants in South African, in 2022/23 financial year, an amount of about R17 billion was made available for all 219 MIG receiving municipalities and was administered through PMU's and that on its own creates a potential for corruption and fraudulent activities and it requires good financial management and financial controls.

Political decisions have a significant bearing adversely on functionality of Project Management Units in municipalities and eventually the poor quality of

project planning, delivery, and maintenance. All respondents did not provide an outright proposal to address political interference other than to emphasis on separation of roles and creation of clear project management charter that defines roles and responsibilities for all stakeholders involved in the project administration.

Whilst contract management is one of the biggest challenges experienced by municipalities in South Africa as they are taken for litigation by service providers that are supposedly rendering services, there are other emerging challenges like safety and environmental challenges that are delaying and increasing the cost of project delivery and risks beneficiation of why these projects are implemented in the first instance. There are also challenges of not properly defining the scope and the cost of the works properly and during implementation of projects, there are deviation (scope creep and cost adjustments) and if one considers all these emerging risks, they will require enhancement of PMU structure to have experts in these fields that supports the project manager.

4.4.5 Theme 5: Provide or recommend improvements that will enhance efficiencies of project management office at municipalities.

Perhaps the combination of lack of credible experience and continuous improvement processes is what is highlighted by the respondents as a challenge that is required to enhance efficiencies of PMU's. Moreover, the issue of investment into specialist skills as a way of addressing the deficiencies that are being experienced by PMU's at local government.

Technology is continuing to have a significant role and impact for all human activities and as such project management is hugely taking-up the utilization of project management software's and modelling tools to positively influence the outcome of the projects/programmes/portfolio. The influences of these technological tools assist to expedite progress, to provide experts opinions, for reporting, as the knowledge management tools, and other benefits desired.

There are other significant tools of trade, but the study has narrowed the focus to technological contributions to project management as part of agile culture that is at full swing within project management.

4.5 Summary

The evidence of the challenges at municipalities and PMU's are exhibited by the community protests by citizens that have been caused by alleged poor infrastructure and service delivery issues, with complaints also of misappropriation by officials and councillors. A special parliamentary report identified various governance and wider reasons for the protests as:

- *“Systemic (such as poor management, fraud, cronyism and corruption in housing lists); structural (such as poor healthcare system, lack of employment opportunities, and land availability or utilisation); and governance (such as poor leadership and the attrition of public confidence in leadership)” (Ndzelu, 2016).*

Aligned with the research results and challenges highlighted by the respondents are the summary of issues contained within the State of Local Government Report 2021 that refers:

- Weak implementation of capacity building programmes and initiatives,
- Inadequate monitoring and oversight by municipal councils,
- Indecisiveness to deal with glaring political challenges e.g. two mayors within one municipality, dysfunctional councils, etc.
- Political acknowledgement of challenges not backed by political actions/interventions.

In summary, limitations of having imbalanced PMU capacity (fewer project managers against the number of running projects) contributes to poor performance or inefficient project performance. Capacity review and restructuring can make a significant contribution to service offering by PMU in delivering quality projects on time, within desired scope and provide quality. Technological enhancement and added utilization of tools of trades like project management, contract management, cost engineering and planning software packages can provide a huge improvement and develop suppository of project knowledge and information. Project leadership has been outlined at length however, key imperative factor is provision of political guidance and separation of roles and responsibilities to ensure minimal interference to PMU operations.

When the MIG PMU guidelines are amended to reflect international best practice in a form of structuring, in a form of operations and general resourcing, effective and efficient PMU performance that renders quality projects will be realized.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

This chapter concludes and summarizes the study research that was undertaken, and further looked into the challenges and factors that affects Project Management Offices of municipalities in South Africa with a specific focus on King Sabatha Dalindyebo Local Municipality as a case study, and looked at how KSD LM can fully render effective and efficient project management services that enhances service delivery and delivery quality infrastructure projects. This chapter outlines the obstacles encountered during the research process, the conclusions drawn, and the limitations of those conclusions. It will close with suggestions for how to make future research within the topic more beneficial.

Furthermore, chapter 4 presented research study results and chapter 5 analyses and discusses the findings. The findings from the questionnaire represented the respondent's views on the five (5) thematic interface challenges experienced the Project Management Units (PMU's) of the municipalities and these thematic areas aligns with the research objectives as outlined in chapter 1. Respondents concurred to challenges as outlined in the research and have made recommendations in-line with their understanding of the processes and policy requirements to bring about improvements.

5.1 The research objectives

5.1.1 Objective 1: The capacity challenges of PMO's within Local Municipalities

PMU's continues to have a thin structure that are unable to respond to the demands of delivering infrastructure projects within all requirements of triple constraints of project management (time, cost and quality). Another challenge aligned to capacity of PMU's is the practical experience, level of experience or experience depth of project managers. The span of control to administer infrastructure projects is an identifiable risk that has been highlighted by the research and it contributes to increased utilisation and reliance to consultants by municipalities to plan and implement capital infrastructure projects.

5.1.2 Objective 2: Project management skill requirement of Project Manager/s working in the PMO within local municipalities

Respondents agreed upon that the capacity of candidates with the correct skill-set that must be appointed in municipalities particularly for the Project Management Units, and the recommendation is that, there must be appointment of personnel with professional registration affiliation with the reputable professional bodies to maintain ethics and professionalism within the sector. Also ensure that the structure of PMU is well resourced with supporting personnel like Health & Safety practitioners, Cost Engineers, Project Planners, Project Accountants, Contract Management experts and many others expert services that should be identified in accordance to the project needs. And lastly, research participants also alluded on the consideration that suggested full-time appointment of PMU personnel instead of the current set-up of contract appointment.

Considering the type of PMO (which is organizational based PMO), it resonates that key personnel like the PMU manager, project managers, project accountants, contract management experts be appointed on full-time basis and municipalities should be creative in having mind stimulating activities and exciting projects for these personnel.

“Current thinking about provision of solutions within the industry sectors and specialist skill areas involved” (Murray, 2009). This statement aligns to Public Private Partnership (PPP) model that South African government refers to, in bringing necessary and skilled personnel to advance planning and delivery of infrastructure projects in municipalities and this will be achieved through formation of collaborations that have skill-transfer mechanism as the ultimate end-goal.

“The performance of a business will be severely hampered by a wrong structure. Organisational structures must be created to enable the achievement of the business's goals as outlined in the strategic plan” (Drucker, 1954), and it further continues that “There is no single structure that is appropriate for all organisations, but organizations performing a similar role within a similar environment will tend to develop similar structures.” And this agrees with nature of municipalities across the country and how the PMU structure must be defined considering the international best practises and the specific needs of service delivery.

5.1.3 Objective 3: Identifying the tools and techniques that can facilitate the achievement of project goals in the PMU's in local authorities.

With a recommendation for software utilization as a standard feature in project management administration, respondents utilized this section to address or rather emphasis on the type of skills and experts that are required to be part of project management office/units at local government/municipalities, as stated that no tools can replace the human touch required in projects. Therefore, respondents proposed fit for purpose personnel that will be able to adapt to use of technologies as an enabler to create efficiencies and have further recommended to have complimentary ICT expertise that are to be part of PMU's or at least/support PMU's on more semi-permanent basis and internal utilization will elevate PMU's of municipalities with efficiencies and effectiveness in the delivery of projects and it will further reduce reliance to consultants.

Municipal Infrastructure Support Agent (MISA), entity of the Department of Cooperative Governance (which is responsible for all local government programmes) has developed a design office that have acquired software packages including the project management software packages (Primavera, Ms Projects, etc.) to assist municipalities with utilisation instead of relying to consultants.

5.1.4 Objective 4: Considering the social and environmental impact to PMU

All research respondents/participants have agreed that social and environmental consideration is another major contributor to project delivery failures and one of the biggest area that makes municipal PMU's not to be fully effective in delivering infrastructure projects, as most of responsibility for formulation of regulations and policies is assigned to politicians. Infrastructure grant allocation that are disbursed to municipalities with an intention to address infrastructure delivery, reduce infrastructure backlogs and enhance service delivery have attracted an identifiable corruption practice that have developed with an intention to squander the allocated amounts for personal interests. All section 56 and 57 managers are appointed by the council (MSA, 1998) and this creates an opportunity for council to appoint preferred personnel for PMU and Engineering sections of the municipality and consequentially that affects appointment and control of service providers for infrastructure projects. The respondents identified the cycle as a contribution to general lack of project beneficiation and less successes to deliver projects according to the initial plan

(many variations to scope, cost increase, inferior quality of projects). All these activities are weakened by poor political oversight and increased political interference in project management and administration.

Political interference is one of the key risks outside the project control and in municipalities, the design to address or mitigate this risks is through employment of Community Liaison Officers, however it does not fully provide the required reprieve of political interface and interference by project managers and project team members. The Municipal Structures Act No. 117 of 1998 assigns that responsibility of overall stakeholder coordination, political oversight and political interface with administration to the office of the council speaker who is the political office bearer and the speaker must together with the accounting officer (Municipal Manager agree on the operational and political interface processes and how they will be harnessed for the benefit of service delivery).

Sauser, Reilly and Shenhar, (2009) conferred that the idea, which primarily addresses enduring organisations, contends that congruency between the environment and structure is necessary for organisational performance and that an organization's capacity to adapt or change to its environment determines its effectiveness. The influence and consideration of external environment into the project is of paramount importance, use of PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) is encouraged as the risk management factor, which applies to this research as the respondents highlighted political influence (which is key for PMU's to be effective), impact of infrastructure grant expenditure to economy, the impact of project delivery to social provisions to access basic service delivery, recommended improvements provides for utilisation of the latest technologies/software, and all suggested activities in providing for efficiencies in the project management units of municipalities must be within the precinct of the regulations.

The Project Management strategy should continually adapt to suit the changing power and political aspects within the projects (Massyn and Jay, 2016). Project Management Plan (within the control of the project manager) must be utilized as the control mechanism, communication tools for internal & external stakeholders, and provides responsibility matrix for all stakeholders (internal & external) including outlining political roles in the project.

5.1.5 Objective 5: Factors that can be implemented to improve the functioning of PMU's in the local authorities.

KSD LM and all municipalities have the Organizational Unit PMO/Business Unit PMO/Divisional PMO/Departmental PMO and it provides project-related services to support a business unit or division within an organization including, but not limited to, portfolio management, governance, operational project support and human resources utilization.

The type of project management units that municipalities are using aligns very well with international PMO frameworks, however the challenge or misalignment is on the resourcing and capacitation of the municipal PMO's to render the desired intention of the formation and in achieving the project benefit and to render PMU's efficient and effective. And perhaps, the suggested reporting lines could be an issue.

To achieve this, MIG PMU guideline must review resource that it recommends to be a set-up structure for the Project Management Office of municipalities and this must be accompanied by a sufficient budget allocation for resourcing and capacity development of PMU's.

5.2 Research Question

The research question identified for this research report is:

What are the challenges faced by the PMO/PMU within the local authorities that hinders the achievement of project goals?

The five thematic areas that summarises the contribution of the research respondents/participants and the research objectives discussed above have highlighted the following challenges: lack of capacity to formulate a meaningful PMU's in municipalities, limited utilization of credible and latest form of tools of trade particularly for information system, lack of alignment to international best practices of PMO framework, and, lastly constraints as the results of political interference to the operations of municipal PMO's.

5.3 Recommendations

The existing MIG PMU guideline were last reviewed in 2017 and issued out to municipalities in March of 2018 and notably that Department of Cooperative Governance and Traditional Affairs (COGTA) always review the guidelines every ten (10) years however, considering agility of project management and ever changing

environment, it is one of the few things that must be reconsidered (the review period) and recommendation of this research will be that a revised and review of the MIG PMU guideline must be effected at every five (5) years.

Furthermore, there are notable vagueness on the information that is contained within the MIG PMU guidelines that are limiting alignment and in-depth information that should be incorporated into the guidelines in-line with latest trends and provisions of PMO framework available internationally. The guidelines must in-script information and provide structuring of PMU's based on categories of municipalities rather than allocation they receive as this is misleading and does not refer to various consideration (number of projects, complexity, expert requirements) and often more than anything, the municipalities that receives the minimum MIG grant allocation are mostly affected by the challenges as derived in this research. On resourcing of PMU personnel, MIG guidelines must regulate and issue a legislation on personnel to be appointed at PMU's so that it eliminates discretion of municipalities in making the appointments.

Moreover, MIG PMU guidelines must clearly provide parametres of necessary tools of trade that can be utilized by PMU's and guide on funding mechanisms to enable acquisition and utilization of the tools. Furthermore, the guidelines must clearly outline roles and responsibility of all PMU stakeholders (internal and external) and this must be contained in the risk management of the annual PMU business case that municipalities are obliged as one of compliance documents that must be submitted for consideration of COGTA prior making grant allocations to municipalities.

Full utilization of PMO frameworks or blending of the frameworks by municipalities in their implementation of projects so that it advances outputs in managing projects by means of fostering collaborations amongst project stakeholders, improve document management (drawing inventory, correspondence, change control documents, approvals of claims, budget control reports, etc.), improved analysis of data, structured construction logistics, avoidance of costs overruns, management of planned project schedule, enhancement of quality control and improved lifecycle management. Therefore, the research has achieved the following:

- Reviewed the performance of local government (municipalities) pertaining their PMU formation and capacity;
- Reviewed PMU guidelines in-line with existing PMO frameworks;
- Conducted data collection aligned to exploration of project management maturity at local government and analysed it for conclusive recommendations;
- Provided or recommended areas of improvement that will enhance efficiencies of project management office at municipalities.

Overall, the research has exhibited benefits of adapting the project management office framework at a local government sphere as a way of improving effectiveness of project management office thus ensuring that administering of municipal projects are creating efficiencies and building smart cities and towns. Also, the research has demonstrated Critical Success Factors (CSF's) to formulate and operate a functional project management office at a local government sphere in South Africa.

REFERENCES

Aubry, M., Müller, R., Hobbs, B. & Blomquist, T. 2010. *Project Management Offices in Transition*, 25 May 2010. University of Quebec, Montreal. International Journal of Project Management 28 (2010) 766–778

Auditor General of South Africa. 2021. *MFMA 2020-21 Consolidated General Report on Local Government Audit Outcomes*, 15 June 2021. Available: MFMA-2020-21-audit-outcomes.pdf (corruptionwatch.org.za)

Bhattacharjee, A. 2012. *Social Science Research: Principles, Methods, and Practices*. Open University Press, USF Tampa Bay.

Biesenthal et al., 2017. *Applying institutional theories to managing megaprojects*. International Journal of Project Management 36(1) Available: [DOI:10.1016/j.ijproman.2017.06.006](https://doi.org/10.1016/j.ijproman.2017.06.006)

Bradley, E. H., Curry, L. A., & Devers, K. J. (2007). *Qualitative data analysis for health services research: Developing taxonomy, themes, and theory*. Health Services Research, 42(4), 1758–1772.

Crawford, L., Aitken, A. & Hassner-Nahmias, A. 2014. *Project management and organizational change*. Newton Square: Project Management Institute, Inc.

Crawfords, J.K. 2021. *Project Management Maturity Model*. 4th Ed. Oxon: CRC Press.

Darling and Whitty, 2016. *PMO Typologies & Functions: Systematic Review*. Article available on: <https://eujournal.org/index.php/esj/article/download/12929/13043>

Department of Cooperative Governance & Traditional Affairs. 2018. *A Guide for the Establishment of a Project Management Unit (PMU)/Capability of municipalities*. Pretoria: Government Printer

Department of Cooperative Governance & Traditional Affairs. 2021. *The State of Local Government (SOLG) Report*, 30 June 2021. Pretoria: Government Printer

Drucker, P. 1954. *The Practice of Management: A Study of the Most Important Function in American Society*. New York : Harper and Row Publishers , 1954 -

Available at: <https://library.au.int/practice-management-study-most-important-function-american-society-4>

Dudovskiy, J. 2018. *The Ultimate Guide to Writing a Dissertation in Business Studies: A Step-by-Step Assistance*. Sage Publications, New York.

Ferreira, H., Tereso, A., & Fernandes, G. 2016. *Conceptualization of Project Management Office*. 3rd International Conference on Project Evaluation (ICOPEV) 11 June 2016. Guimarães, Portugal. Available on: <https://www.researchgate.net/publication/304496917>

Finch, P. 2003. *Applying the Slevin-Pinto project implementation profile to an information systems project*. Project Management Journal, 34(3), 32-39

Firley, E. & Grön, K., 2014. *The urban masterplanning handbook*. John Wiley & Sons.

Gumede, M. 2021. *Model Validation For The Municipal Infrastructure Service Delivery Functionality Model*. Masters Dissertation. University of Cape Town.

Johnson, B. & Turner, L.A. 2003. *Data Collection Strategies in Mixed Methods Research*.

Komentar, T. 2021. Qualitative Research Vs Quantitative Research: Peachy Essay Quantitative Vs Qualitative Research Effective Guide - The differences explained | scribbr. Blog available on <https://wasikgunggung.blogspot.com/2021/05/qualitative-research-vs-quantitative.html>

Kondraju, M. 2014. *Challenges in Implementation of a Project Management Office*. *International Journal of Knowledge and Research in Management & E-Commerce*, January, 2014. Available on: <https://www.researchgate.net/publication/299446822>

Kumar, R. 2005. *Research Methodology: A Step-by-Step Guide for Beginners*. London: SAGE.

Mayekiso, N. 2013. *How to write a Literature Review*. 2013. UNISA: available on https://libguides.unisa.ac.za/literature_review

Monteiroa, A., Santosa, V., & Varajão, J., 2016. *Project Management Office Models – a review*. University of Minho: Portugal – Elsevier

Municipal Structures Act (MSA)117 of 1998. *Government gazette*. 19614. 11 December 1998. Government notice no. 1650 Juta Printers.

Murray, A., and Great Britain Office of Government Commerce. 2009. *Managing Successful Projects with Prince2 2009 Edition Manual*. 2009 ed. 5th ed. London: TSO (The Stationary Office).

National Planning Commission. 2011. *National Development Plan 2030*. Pretoria: Sherino Printers

National Treasury. 2022. *Annual Grant Performance Report for end of 2021/22 Financial Year*. Pretoria: National Treasury

Newman, I. & Benz, C.R. 1998. *Qualitative-Quantitative Research Methodology: Exploring the Interactive Continuum*. Southern Illinois University, Carbondale.

Nicholas, J.M. & Steyn, H. 2012. "*Project Management for Engineering, Business & Technology, 4th edition*". Routledge Group.

Pinto, J. K. & Slevin, D. P. 1988. *Project success: definitions and measurement techniques*. Project Management Journal, 19 (1), 67-72.

Potgieter, S. 2017. *Research Support: Research Methodology*. University of Witwatersrand, 2017. Available on <https://libguides.wits.ac.za/research-support>

Project Management Institution. 2013. *A Guide to the Project Management Body of Knowledge (PMBOK Guide) (5th Ed.)* Project Management Institute, Inc.

Project Management Institute. 2013. *Pulse for professionals - Project Management Office Frameworks*. Pennsylvania: Project Management Institute, Inc.

Project Management Institute. 2013. *Pulse of the Profession®: The Impact of PMOs on Strategy Implementation*. November 2013. Pennsylvania: Project Management Institute, Inc.

Project Management Institute. 2015. *Pulse of the Profession®: Capturing the Value of Project Management*. July 2015. Pennsylvania: Project Management Institute, Inc.

Public Finance Management Act, No. 1 of 1999. 1999. *Government gazette*. 19978. 30 April 2018. Government notice no. 848. Pretoria: Government Printer

Reh, J. F. 2019. *Using the Knowledge, Skills and Abilities*. Article available: www.liveabout.com/understanding-knowledge-skills-and-abilities-ksa-2275329

Schroeder, K. & Hatton, M. (2012). *Rethinking risk in development projects: from management to resilience*, *Development in Practice*, 22:3, 409-416. <http://dx.doi.org/10.1080/09614524.2012.664623>

Shenhar, A.J. & Dvir, D. 1996. "Toward a Typological Theory of Project Management" *Research Policy*, Vol. 25, No. 4, 1996, pp. 607-632.

Shenhar, A.J., Dvir, D., Levy, O. & Maltz, A.C. 2001. *Project success: a multidimensional strategic concept*. *Long range planning*, 34(6), 699-725.

Silvius, G. 2021. *The role of the Project Management Office in Sustainable Project Management*. <https://doi.org/10.1016/j.procs.2021.01.302>

Statistics South Africa. 2022. Statistical Release. P0301.4. 10 October 2023. Pretoria: Statistics South Africa.

Taylor, D. *The Literature Review: A Few Tips On Conducting It* (n.d). University of Toronto. available on <http://advice.writing.utoronto.ca/types-of-writing/literature-review/>

United Nations. 1997. *Convention on the Climate Change*. Kyoto, Japan, 11 December 1997. Kyoto: United Nations.

United Nations. 2009. *Conference on the World Financial and Economic Crisis and Its Impact on Development*. New York, 24-30 June 2009. New York: United Nations.

Winter, M., et. Al. 2006. Improvement of process in rethinking project management, *International Journal of Project Management*.

World Health Organization. 1992. *United Nations Conference on Environment and Development (UNCED) on Global Strategy for Health and Environment*. Rio de Janeiro, June 1992. Rio de Janeiro: World Health Organization.

Worsley, L.M. 2016. *Stakeholder-Led Project Management: Changing the Way We Manage Projects*. Business Expert Press.

APPENDICES

1. Ethics Clearance Approval



- Dear Luntu Ndalasi (Applicant),
- Student Number: **NDLLUN010**
 - Department: **CEM:Dept. of Construction Econ&Managemnt**

The following ethics application with EBE/00127/2023 has been **APPROVED WITH CONDITIONS**:

[EFFECTIVENESS OF PROJECT MANAGEMENT UNIT AT A LOCAL GOVERNMENT SPHERE \(A CASE OF KING SABATA DALINDYEBO LOCAL MUNICIPALITY IN MTHATHA, EASTERN CAPE\)](#)

- Please access your application and familiarise yourself with the conditions for approval.
- An outcome letter is available on the eRA platform.

Regards,

- Engineering & Built Environment Committee

2. Consent Request and Approval to conduct research survey:



Letaba House, Riverside Office Park, 1303 Heuwel Avenue, Centurion, 0046
Private Bag X105, Centurion, 0046 Tel: 012-848 5300

CONSENT TO PARTICIPATE IN THE DATA COLLECTION FOR MSC PROJECT MANAGEMENT STUDIES WITH UCT – LUNTU NDALASI.

Dear Mr. N. Pakade (Municipal Manager),

I am Luntu Ndalasi, a Chief Director responsible for Technical Support Services to municipalities at Municipal Infrastructure Support Agent (MISA) and entity of COGTA and I am also a UCT MSc: Project Management student.

I wish to introduce the basis of my request to conduct a research with the technical team (engineering department) of your municipality, as part of my research, I have a special interest on the Project Management Unit as I am looking into the existing MIG guidelines and how they assists municipalities to better perform their functions. I am the registered Masters of Science (MSc) in Project Management with University of Cape Town and as part of fulfilling the study responsibilities, I am required to finalize my dissertation which is described below:

"The purpose of this study is to investigate the effectiveness of the Project Management Units (PMU's) at a Local Government Sphere (municipalities). The study compares the existing formation of PMU's in the local government sphere and compares it with the existing international Project Management Office (PMO) frameworks. We seek to benchmark with King Sabata Dalindyebo Local Municipality performance as a measure of what is viable and attainable to align to the best practices and influence updates in the MIG guidelines.

As your municipality has been performing exceptionally in the MIG programme and that your engineering team have experts in project management, we have purposely selected your municipality to participate in this study. Subsequently their participation will contribute immensely to the findings of the study, which will add knowledge in gaps of project management office framework and enhance guideline for Project Management Units in the context of service delivery by local government sphere (municipalities) in South Africa. The study is also important to practitioners across

various sectors in South Africa and will encourage further research in the academic field.

Kindly note that participation in this study is voluntary and you may choose to freely withdraw when necessary. The data collected in this study and information pertaining to the study is solely for academic purposes. Personal information provided will be treated confidentially. The interview to respond to the research questions will take 10-15 minutes to complete."

Please provide me with permission to interview as part of my studies the following personnel:

- Technical Director: Engineering Services
- Project Management Unit (PMU) Manager
- Project Managers

An email contact of the colleagues listed above will be appreciated and I will then schedule engagements (virtually and physical where it is feasible) as we will be trying to minimize the COVID-19 interaction and exposure.

Looking forward to meaningful interaction and assistance to be acquired from your team.

Regards,

Signed by candidate

LUNTU NDALASI

CHIEF DIRECTOR: TECHNICAL SUPPORT SERVICES

DATE: 26/04/23

ACCEPTANCE: Approved/Not Approved

Signed by candidate

NGAMELA PAKADE

MUNICIPAL MANAGER: KSD MUNICIPALITY

DATE: 02/05/2023

3. Survey Questionnaires

Background and purpose of the study

The purpose of this study is to investigate the effectiveness of the Project Management Units (PMU's) at a Local Government Sphere (municipalities). The study compares the existing formation of PMU's and compares it with the existing Project Management Office (PMO) frameworks.

As an expert in project management, you have been purposely selected to participate in this study. Subsequently your participation will contribute immensely to the findings of the study, which will add knowledge in gaps of project management office framework and enhance guideline for Project Management Units in the context of service delivery by local government sphere (municipalities) in South Africa. The study is also important to practitioners across various sectors in South Africa and will encourage further research in the academic field.

Kindly note that participation in this study is voluntary and you may choose to freely withdraw when necessary. The data collected in this study and information pertaining to the study is solely for academic purposes. Personal information provided will be treated confidentially. The interview to respond to the research questions will take 20-35 minutes to complete.

PARTICIPANTS INFO:

i. General Information:

Which of the following industries have you worked and how many years have you spent in each of them?

INDUSTRY	WORKED (YES/NO)	NO. OF YEARS
Public sector		
If Public sector (municipality)		
If Public sector (Provincial Government)		
If Public sector (National Government)		
Private sector		
If Private Sector (Consulting Engineering)		

If Private sector (Construction company)		
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How many years of experience in total do you have within a project management environment?

1 - 5 years		10 -15 years	
6 -10 years		More than 15 years	

What was the value (highest range) of the project (s) you were part of?

Less than R10 million		R100- R150 million	
R10–R50 million		R150- R200 million	
R50-R100 million		More than R200 million	

Project type you have administered:

	Project Type	Specify Project Name
	Social Development Project	
	Water/Sewer related infrastructure	
	Road's construction/maintenance	
	Power/Electrical Delivery project	
	Refurbishment	
	Upgrades	
	New projects	
	Other (Specify)	

How many employees are/were employed on the project/s (no. of team members in the project)?

<50	50 – 100	100 – 500	>500
Specify:	Specify:	Specify:	Specify:

Project timeframe (longest duration for a single project)

0 – 2 years	2 – 5 years	5 – 10 years	10 – 15 years
Specify:	Specify:	Specify:	Specify:

Specify your Professional Registration

	Project Management Professional (PMP)		Project Management Institute (PMI)
	Certified Associate in Project Management (CAPM)		Associate in Project Management
	Certified Project Management Practitioner (CPMP)		Master Project Manager (MPM)
	Institute of Risk Management South Africa (IRMSA)		Professional in Project Management (PPM)
	Project Management South Africa (PMSA)		Certified Project Director
	South African Council for Project and Construction Management Professions (SACPCMP)		Not a registered professional Project Manager practitioner
	Other (Specify):		

Select Your Qualification (highest qualification).

	Grade 9		National Diploma and Advanced Certificates
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	Grade 10 and National Vocational Certificates Level 2		Bachelor's Degree, Advanced Diplomas, Post Graduate Certificate and B-Tech
	Grade 11 and National Vocational Certificates Level 3		Honours Degree, Post Graduate diploma and Professional Qualifications
	Grade 12 (National Senior Certificate and National (vocational) Certificates Level 4		Master's Degree
	Higher Certificates and Advanced National (vocational) Certificates		Doctor's Degree

ii. Specific programme performance information

Could you please answer the following questions?

1. How much is the annual allocation of the MIG at KSD and do you think is sufficient to meet all the service delivery requirements?
2. What do you understand to be the mandate of PMU at KSD?
3. Do you think the current capacity of the PMU at KSD is sufficient to carry the task and mandate of PMU?
4. Depending on the response above, what further recommendations would you recommend to the structure or capacity of PMU?
5. What functionality recommendations will you make for PMU's in-line with international Project Management Office frameworks and other PMO recommended best practices?
6. Do you think PMU personnel should be permanently employees of the municipality or should be appointed on contract of between 3 – 5 years? Briefly motivate why?
7. What tools of trade would you ensure that the PMU of KSD attains and utilizes on regular basis to improve performance?

8. In your understanding and experience, what are the threats/constraints to project management units in municipalities?
9. To what extent does power, authority and the political environment have a negative effect on operation of project management units/office of municipalities?
10. Do you think poor performance in municipalities is caused by shortage of project management skills or lack of relevant people? What is the proposed solution to address the challenge?
11. To what extent does Appointed Social Facilitators at PMU's play their role in project management and enhancement of community participation in the Municipal Project?
12. How in your opinion can be done to enhance efficiencies of PMU's in municipalities?
13. Are there any alternatives technology tools which could recommend for inclusion in the MIG guidelines to enhance effectiveness, create efficiencies and creation of value for money in the municipal capital projects?
14. Besides technological tools, what other improvements would you introduce in the MIG guidelines for municipalities?

4. Summary of Research Responses

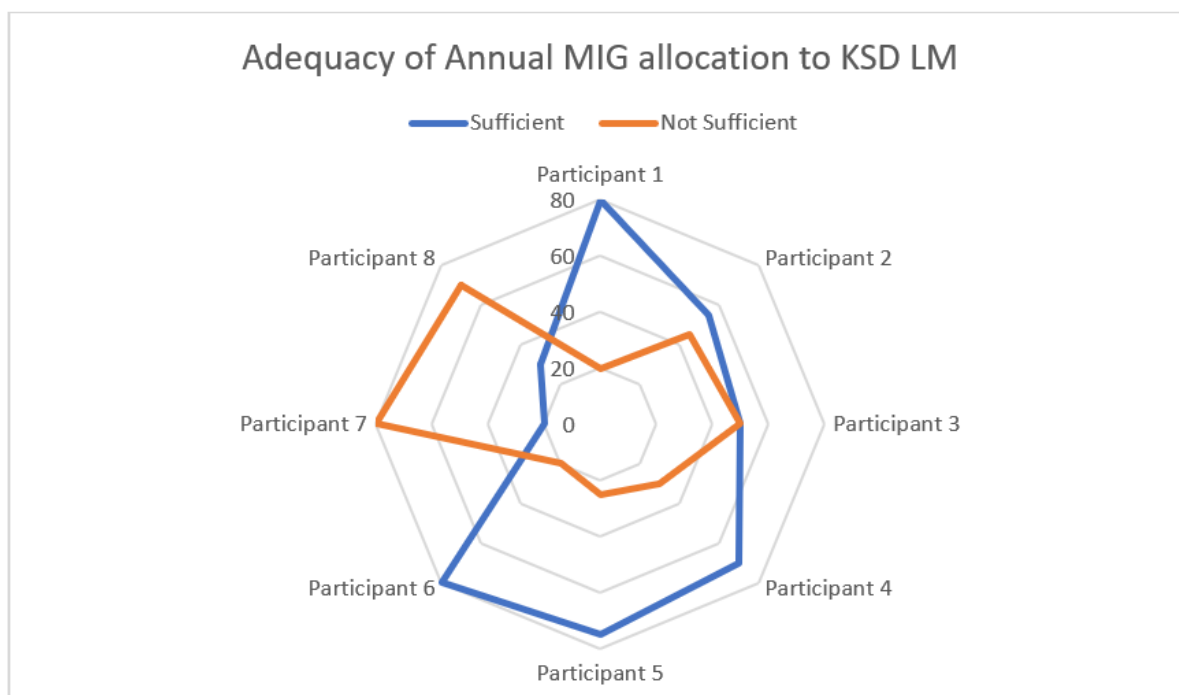
i) PM expertise of participants:

Organization	Role	Industry Exp.	PM Exp.	Highest no. of team members in one project	Project timeline	Prof. Registration	Highest Qual.
COGTA	Provincial MIG coordination	26 yrs.	15 yrs.	50-100	2-5 years	No	NQF 8 (Honours)
Provincial Treasury	Provincial MIG coordination	20 yrs.	15 yrs.	50 – 100	2-5 yrs.	Yes (ECSA)	NQF 7 (B-Degree)
MISA	Programme Management Support	20 yrs.	15 yrs.	50 – 100	2-5 yrs.	Yes (ECSA)	NQF 9 (MSc PM)
SALGA	Water & Sanitation support	12 yrs.	10 yrs.	230	2-5 yrs.	Yes (ECSA)	NQF 8 (Honours)
MISA	Project Management Support	26 yrs.	15 yrs.	50 – 100	2-5 yrs.	Yes (ECSA)	NQF 9 (MEng)
MISA	Project Management Support	14 yrs.	10 yrs.	50 – 100	2-5 yrs.	Yes (ECSA)	NQF 7 (B-Degree)
King Sabata Dalindyebo LM	Engineering services	20 yrs	11 yrs.	50 – 100	2-5 yrs.	No	NQF 7 (B-Degree)

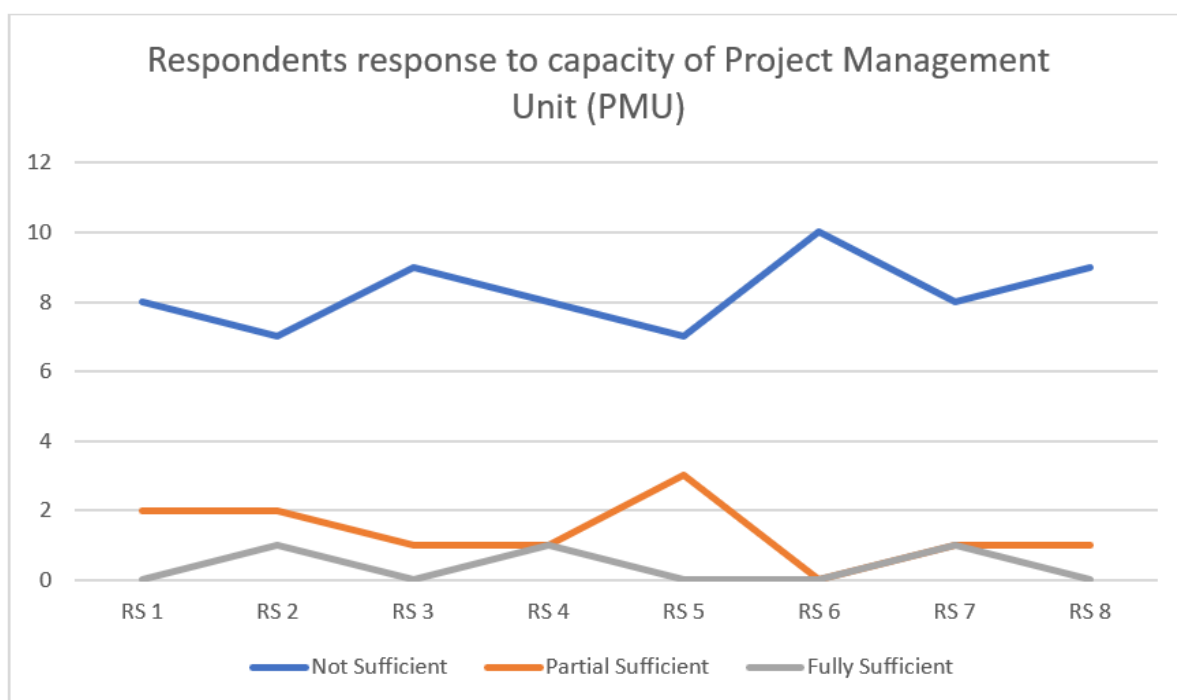
King Sabata Dalindyebo LM	Project Management Unit administration	14 yrs.	10 yrs.	50 – 100	2-5 yrs.	No	NQF 7 (B-Degree)
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ii) Summary of Specific programme performance information

- a) On receiving sufficient MIG allocation for the municipalities to deliver the projects within quality and schedule: As shown below, there was such transverse of responses from respondents particularly if it can be noted that municipal respondent highlighted inadequacy of the MIG allocation and all supporting stakeholder respondents have highlighted a strong level of adequacy of the allocation and their reasoning being that municipalities have to show a niche of spending infrastructure grants with ease before they can be considered for adjusted increases.



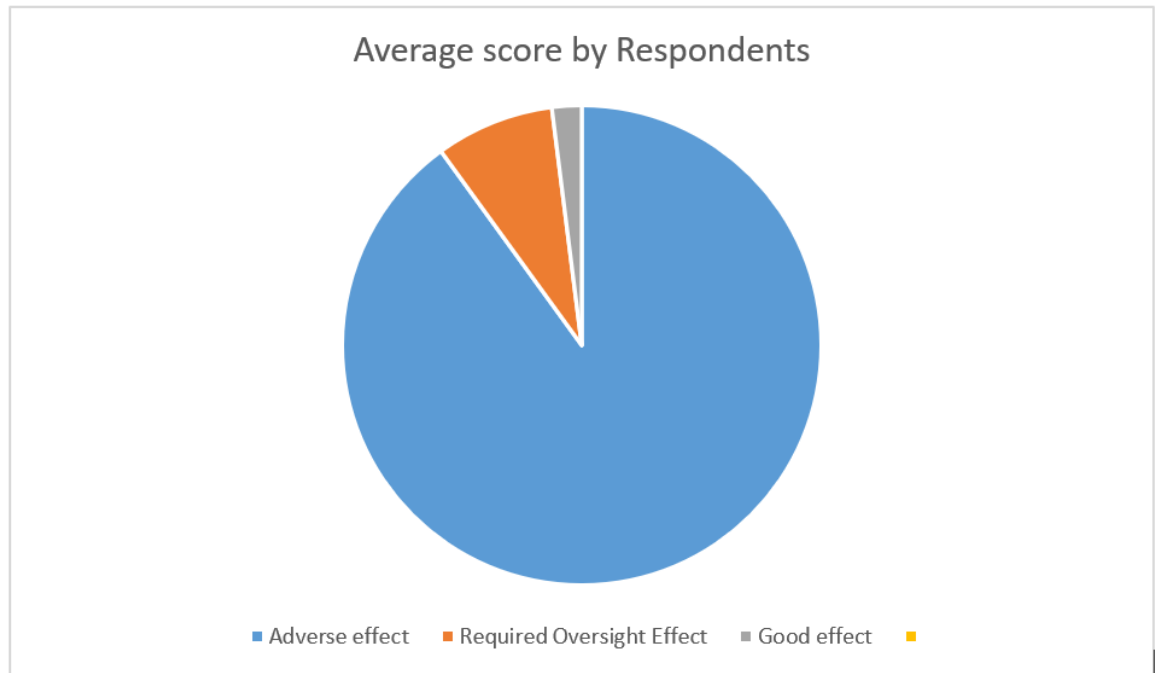
b) Capacity of PMU's



All participants agreed that the budget allocation for KSD PMU is not sufficient considering the backlogs on basic service delivery demands within the municipality. Similarly, all participants' highlighted imbalanced structure of the PMU to render proper project management required for all their projects, i.e. KSD LM PMU has only 2 qualified project managers and utilized additional two engineering technicians as supplementary to the available project management team and in total, they are administering about 26 projects registered on the Project Implementation Plan of the municipality with various degrees of complexity and that proportions the ratio of about 6.5 projects administered by a single project manager. PMI emphasis the point that project managers must be given not more than two (2) projects at a given period to administer so that it can improve their focus and quality of attention rendered to success factors of the projects.

The other factor on capacity that was highlighted by 66% of participants was that even the qualification and professional affiliation or lack thereof of the project managers at KSD LM which is also a national norm is a contributing factor to performance of project management units.

- c) Political interference is a major constraint in the effective functionality of PMU's at local Government:



Municipal Structures Act of 1998 defines roles and responsibilities of all stakeholders in the municipal value-chain. However, the increased reliance on external service providers by municipalities due to lack of skills creates a very fertile opportunity for interest of money flowing and politicians as much as they are prohibited to interfere in operations and any procurement process as derived in the Municipal Finance Management Act but it is actually a proven theory that municipal politicians have serious input in the recruitment of PMU personnel, to appointment of service providers that will work in the infrastructure projects. This deployment and interference arrangement creates a culture of non-delivery, inferior quality of projects, lack of stability and poor work environment amongst other things.