A CONCEPTUAL FRAMEWORK FOR THE ESTABLISHMENT AND OPERATION OF PROJECT MANAGEMENT OFFICES IN SOUTH AFRICAN MUNICIPALITIES

by

PAKENG MAJASEHUBA MOHLALA

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"**Felix, qui potuit rerum cognoscere causas**"
Virgil (70 - 19 BC)

Statement of originality and acknowledgement of sources

I declare that this thesis titled '**A conceptual Framework for the establishment and operation of Project Management Offices in South African Municipalities**' is my own work and that all sources of information that I have used or quoted have been indicated and acknowledged by means of a complete reference list.

P.M. Mohlala

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May the Lord keep and bless you all.
Thank you all.

Abstract

The aim of this research is to develop a conceptual framework for the establishment and operation of effective PMO in the South African Municipal Environment. In pursuit of this aim, the theory and practice of the PMOs were investigated and analysed from both literature perspective and field work leading to findings being reported in the thesis. In addition, the municipal PMOs were investigated to determine the extent to which their attributes match those of the proposed conceptual framework.

A specific research philosophy and approach were adopted by utilising the case study strategy using interviews, document reviews and observation. A questionnaire guideline was developed for the interviews. The sampling frame from which the participants were obtained was from the three municipalities (cases). A total of 27 interviews were conducted. Data was analysed in line with Table 3.6 which prescribes the process for case study analysis using NVIVO 11 software for coding, clustering and pattern matching.

The findings confirmed the original expectations of the researcher and all the objectives were sufficiently addressed. The first objective, which was to identify and analyse factors considered in establishing PMOs in the three municipalities, was adequately dealt with by identifying, listing and analysing all the key factors considered in establishing the PMOs. In merging these factors with the best practices outlined through the theory and practice in chapter two, gaps were identified which indicates that the process followed by the department of local government was flawed when developing the MIG guidelines. The identified factors were brought into consideration in building the proposed framework.

The second objective was to analyse the level of fitness for purpose of the PMOs in the three selected municipalities. In order to deal with this objective, the adequacy of PMOs to carry out their mandates was scrutinised. This was done through identifying the key drivers of municipal PMO mandates, their achievements and challenges and whether they adhere to project management best practices. Most challenges, failures and negative perceptions that the PMOs faced were as a result of internal disablers that could be dealt with by identifying and dealing with the internal system deficiencies that were a result of procedural wrongs that could be traced from the establishment stage. This analogy or approach assisted in finally formulating a framework that would deal with these system deficiencies. The third objective was to analyse patterns of municipal dependent factors that dictate the type of PMO that is suitable for the municipalities. This was approached in terms of grouping the factors that

can be classified as common denominators across municipalities. There were also few internal unique factors in each municipality. The new proposed framework deals with these aspects holistically.

Ultimately, the aim which was to develop a conceptual framework for the establishment and operation of PMOs in the South African municipal environment was sufficiently answered through the proposed model and framework as presented in Figure 5.2 and Figure 5.5 respectively. This was achieved by merging the identified gaps and by proposing a conceptual model which ultimately let to the proposed framework that can be used to establish an effective PMO for the municipalities. The main gap that was found was that there is no model and framework for establishing PMOs and therefore the department of local government in developing a guideline, did not have an appropriate foundation from which they could have drawn a relevant model and framework that could have properly guided the formation of these units in the municipalities.

It was recommended that a PMO will be more effective as a stand-alone directorate whose mandate should be considered beyond the MIG, in order to gain more authority and improved performance. This is demonstrated by the developed framework which indicates the role of the PMOs and their expected performance outcomes.

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Glossary of Acronyms

ANCSPM	Australian National Competency Standards for Project Management
AIPM	Australian Institute for Project Management
APM	Association for Project Management
APM BoK	Association for Project Management Body of Knowledge
BoK	Bodies of Knowledge
BOT	Build, Operate and Transfer
CETA	Construction Education and Training Authority
CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integration
COBIT	Control Objectives for Information and Related Technology
COE	Centre of Excellence
CoGTA	Cooperative Governance and Traditional Affairs
CPS	Construction Procurement System
CRR	Community Risk Reduction
CSFs	Critical Success Factors
DBSA	Development Bank of Southern Africa
DORA	Division of Revenue Act
DPEMS	Development Planning and Environmental Management Services
ECSA	Engineering Council of South Africa
ENAA	Engineering Advancement Association
EPMO	Enterprise Project Management Office
EPWP	Expanded Public Works Programme
GIS	Geographical Information Systems
ICB	International Project Management Association's Body of Knowledge Competence Baseline
IDP	Integrated Development Programmes
INEP	Integrated National Electrification Programme
IPMA	International Project Management Association
IPU	Infrastructure Planning Unit
IS	Information Systems
JWF	Joint Water Forum
ISACA	Systems Audit and Control Association
IT	Information Technology
MIG	Municipal Infrastructure Grant
MIS	Municipal Information Systems
MMC	Member of Mayoral Council
NDPG	Neighbourhood Development Partnership Grant
OGC	Office of Government Commerce
OH & S	Occupational Health and Safety
O & M	Operation and Maintenance
OPM3®	Organizational Project Management Maturity Model
ORWRDP	Olifants River Water Resource Development Project
PBO	Project Based Organisation
PMBoK	Project Management Body of Knowledge
PMCoE	Project Management Centre of Excellence
PMI	Project Management Institute
PMMM	Project Management Maturity Model

PMMU	Provincial MIG Management Unit
PMO	Project Management Office
PMU	Project Management Unit
PO	Project Office
PPP	Public Private Partnership
PRINCE2	Projects In Controlled Environments
PSO	Project Support Office
P2M	Project and Programme Management for Enterprise Innovations
P2MM	PRINCE2 Maturity Model
P3M3	Portfolio, Programme and Project Management Maturity Model
P3O®	Portfolio, Programme and Project Office
RBIG	Regional Bulk Infrastructure Grant
RDP	Reconstruction and Development Programme
ROI	Return On Investment
SBU	Strategic Business Unit
SEI	Software Engineering Institute
SPAID	Support Programme for Accelerated Infrastructure Development
SPME	Strategic Planning, Monitoring and Evaluation
SPO	Strategic Project Office
UK	United Kingdom
USA	United State of America
WBS	Work Breakdown Structure

CHAPTER 1: INTRODUCTION

1.1. Preamble

This research is intended to investigate the effectiveness of the existing Project Management Units (PMUs) or Project Management Offices (PMOs) in South African municipalities. Currently, there are frequent service delivery related protests in South Africa, which may be linked to a lack of or poor infrastructure service delivery. These problems may be as a result of deficiencies within the PMOs. In pursuing this objective, the role of these PMOs in project implementation was exploited. The ultimate aim of this research is to develop a conceptual framework for PMOs in South African municipalities that will assist the practitioners when establishing, developing and operationalising PMOs (For the purposes of this research, the terms 'PMU' and 'PMO' shall mean the same thing). However, 'PMO' will be used throughout the research. Additionally the terms 'South African local government' and South African municipality shall also mean the same thing with the latter being preferred).

Ideally, PMOs are set up to implement project management best practices in organisations, with an aim to guide project delivery effectively and efficiently. PMOs in South African municipalities are supposed to facilitate efficient and effective service delivery. A number of leading formalised project management methodologies or Bodies of Knowledge (BoKs) emphasise the use of PMOs, for example,

i) Project Management Body of Knowledge (PMBOK) from Project Management Institute (PMI)

ii) Projects In Controlled Environments (PRINCE2) from the Office of Government Commerce (OGC)

iii) Association for Project Management Body of Knowledge (APM Bok) from the Association for Project Management (APM).

iv) Control Objectives for Information and Related Technology (COBIT) from the Information Systems Audit and Control Association (ISACA).

v) International Project Management Association's Body of Knowledge Competence Baseline (ICB) from International Project Management Association (IPMA).

vi) Project and Programme Management for Enterprise Innovations (P2M) from Japan's Engineering Advancement Association (ENAA).

vii) Australian National Competency Standards for Project Management (ANCSPM) from Australian Institute for Project Management (AIPM).

All of the methodologies mentioned above advocate the use of PMOs globally with PMBoK as the broadest and the most widely used standard of reference for various industries' (for example; construction, software, automotive, engineering and etc.) employing best practices for project management. On the other hand PRINCE2 is mostly a process based approach widely applied by Information Technology (IT) organisations, even though it remains highly relevant in other sectors (Thomas & Tilke, 2007; OGC, 2009). The Association for Project Management (APM) Body of Knowledge (BoK), is also UK based and provides the foundation for the successful delivery of projects, programmes and portfolios across all sectors and industries (APM), 2006). Control Objectives for Information and Related Technology (COBIT) is the latest of the key project related methodologies and is widely used as a framework for IT governance and control with limited emphasis on PMOs. The International Project Management Association (IPMA) is the world's first project management association, founded in 1965 and is the leading authority on competent project, programme and portfolio management (PPPM) (IPMA, 2015). It is the view of the researcher that these BoKs are not competing BoKs but are rather collaborative standards and are used in this research for complimentary purposes. Chapter two provides a detailed discussion on these BoKs and their relation to successful PMOs in organisations.

When implemented appropriately in line with the organisational needs and maturity level of the organisation, PMOs were found to significantly improve project performance in organisations. In addition, organisations that have a PMO have clearly achieved more than those that do not have PMOs in promoting project management best practices, standards and methods, historical archiving, training, and even consulting and mentoring (Dai & Wells (2004).

This chapter is divided into 10 sections. The next section discusses in detail the public sector project management in South Africa. The third section provides an overview of South African municipalities and their PMOs. The fourth, fifth, sixth, seventh and the eighth sections define the research problem in terms of the identified gap in knowledge, problem statement, research aim and objectives, scope and contribution. The last two sections provide the thesis outline and the summary of the chapter.

1.2. Public Sector Project Management in South Africa

This section provides a summary of the South African system of government, the use of project management in the three spheres of government and the state of infrastructure service delivery in the country will be analysed.

1.2.1. South African Government System

Public sector functions in South Africa are divided into three spheres of government with exclusive functions of the state at national level which includes national defence, the criminal justice system, higher education, water and energy resources and the administrative functions of home affairs. The Second sphere is the provincial level whose function comprises provincial roads, health services, housing and provincial planning, as well as several concurrent functions, or functions that are either carried out at national or the municipal level (Bowen *et al*., 2007). A third sphere is the municipal level. The functions in this sphere include the provision of water, electricity, sanitation, refuse removal, municipal infrastructure and emergency services (Bowen *et al*., 2007).

The importance of efficient public service delivery emanates from section 195(1) of the constitution of the Republic of South Africa, which stipulates that public administration should adhere to a number of principles, including that services must be provided impartially, equitably and that resources should be utilised efficiently, economically and effectively (Republic of South Africa, 1996).

1.2.2. The use of project management in the three spheres of government

Generally, there is a tendency for public institutions to become leaner and to evolve from a functional base towards a more project oriented structure through various economic events which include rationalisations, restructuring and "down-sizing" initiatives (van der Waldt, 2001). This is partly because the South African Government departments are handling many institutions simultaneously and hence the potential exists to derive benefits by implementing project management techniques properly (Van der Waldt, 2001).

Within the government circles, there have been various programmes aimed at economic development such as the Expanded Public Works Programme (EPWP). These have been designed with an intention to implement the decisions contained in the Reconstruction and Development Programme (RDP) white paper by adopting a programmatic approach (Nel, 2001). In this respect, the White Paper refers to the set of programmes that need to be established and undertaken by public institutions in all

spheres of government, in order to give effect to the objectives of reconstruction and development (Ministry of Local Government and Housing, 1994). Programme refers to the set of similar related projects managed in a coordinated way to obtain benefits not available from managing the projects individually (Shaghil & Mushtaque, 1993).

The RDP white paper adopted a project management approach to development projects, particularly at municipal level (Ministry of Local Government and Housing, 1994). This approach was further emphasised by the white paper on local government in its reference to Integrated Development Plan (IDP) through the IDP manual. The IDP manual and other policy documents produced by the Ministry of Local Government makes provisions for development policy framework for municipal authorities to enable them to initiate and formulate projects that will constitute action plans which the IDP can implement (Ministry of Local Government and Housing, 1998).

From the paragraph above it can be deduced that the government has good intentions which include the integration of its programmes into the project management philosophy. Project management, as a component of programme implementation, is undertaken in various phases that are interrelated and follow a logical progression.

1.2.3. State of infrastructure service delivery in South Africa

Currently, there are service delivery related protests everywhere in the country. This is a symptom of a problem which must be investigated thoroughly. Central to the protests, are poor infrastructure or lack thereof. Most of the projects are either not delivered on time with the expected qualities or they fail to serve their intended purpose (Van der Walt, 2006).

Table 1.1 provides an illustration of examples of project failures from the national department of correctional services. The root causes of these failures were found to be mainly due to poor project management in all ten areas of the project management philosophy. (Van der Walt, 2006). Major causes of project failures are poor project cost, time, scope and quality management.

Table 1-1: Examples of project failures

Project Location	Project Description	Failure	Causes
Polokwane Prison	Upgrading of civil infrastructure, wet services & fencing	Project not completed on time and within budget	Non viability of tendered rates. Poor project time and quality management. .
Baviaanspoort Prison	Repairs and waterproofing to roofing. R9 510 980.00	Project completed 15 months late. Penalties imposed	Poor project time management
Sandton: Leekop prison	Refurbishment of kitchen, cells, and civil infrastructure and wet works	Insufficient human resources allocated to the management of the project. Contractor abandoning site	Poor project time and human resource management
Cape Town: Pollsmoor Prison	Upgrading works	Contractor liquidated	Poor cost, project integration and time management.
Helderstroom prison	Upgrading of water and sewage works	Contract documentation not aligned to scope definition. Work specified was not in accordance with client brief and contract could therefore not be completed on time.	Poor project scope management.

Source: van Der Walt (2006)

One reason for these failures could be attributed to project management maturity level in the public sector. In research conducted by Nel (2001), it was held that public managers must acquire a thorough understanding of project management techniques and their roles during each phase of project management cycles, in order to enhance the effectiveness of project management in the government cycles. Nel (2001) further alluded to the fact that effective project management in the public sector will require public managers and municipal managers to initiate development projects within the broad parameters of their development policies, plans and programmes. The understanding behind this initiative is that, it will assist to include a broader range of stakeholders such as affected communities and political leaders, which will result in an increased buy in by the stakeholders. This is further supported by the fact that the Ministry of Local Government through the Municipal Systems Act, 2000 instructs each local authority to draw up an IDP, by facilitating direct community participation in the needs assessments within their area of jurisdiction (Ministry of Local Government, 2000). The IDP process is the most crucial and integral part of project management at municipal level, as it is part of stakeholder management.

However, with all the effort the government has mustered, Brown and Botha (2005) have revealed that, the public sector in South Africa is still occupied by high level decision makers that are typically not knowledgeable about project management. Public Managers are still failing to infuse project

management effectively and efficiently as part of functional operations, process and assimilate into government structures, and there is an apparent lack of understanding on how to utilise project management on an on-going basis, for the operationalization of institutional strategies and objectives (van der Waldt, 2001). This poses a serious challenge for the government infrastructure service delivery programme and has resulted in an infrastructure backlog and therefore resulted in curtailing economic growth (Samuel, 2007). It is therefore crucial for both the government and the private sector to recognise this challenge so that the application of much broader and efficient project management principles, which encompass effective PMOs can be realised (Samuel, 2007). Van der Waldt (2001) points out that there are some government departments at different spheres of government, such as the Gauteng Province's Department of Education, the National Department of Trade and Industry and the Gauteng Province's Department of Welfare that are already migrating towards matrix matrix/project structure with a considerable degree of success.

1.3. An overview of South African municipalities and their PMOs

This section provides an overview of South African municipalities and their PMOs. It presents South African municipal structures and categories, including the current state of local government in South Africa and PMOs in municipalities.

1.3.1. South African municipal structure and the categories

According to the South African Institute of Race Relations (IRR) (2014), South Africa has 278 municipalities divided into three categories, in line with their sizes and their geographic nature. The largest metropolitan areas are governed by metropolitan municipalities, while the rest of the country is divided into district municipalities, each of which consists of several local municipalities in line with the Municipal Structures Act of 1998, and they are divided into the following categories as indicted by the IRR (2014):

i) Category A: Metropolitan (for example, Tshwane Metro, Ethekwini Metro)

ii) Category B: local Municipalities (for example, Polokwane Local Municipality)

iii) Category C: District Municipality (for example Sekhukhune District Municipality).

Category A consists of a metropolitan or big city municipalities such as the city of Tshwane. Category B mainly comprises of small towns surrounded by villages which in close proximity. Category C contains municipalities, which are districts within which local municipalities resides. The structure of these municipalities is dealt with in terms of the Municipal Structure Act 117 of 1998, which sets out the categories and the type of municipalities, providing for elections and handling other matters as they arise. There are eight Metropolitan municipalities and 44 district municipalities. The

remaining 226 municipalities make up the category B municipalities of South Africa. These are the third and the most local tier of the local government system in South Africa.

Categories B and C of the municipalities are further divided into sub-categories. Table 1.2 shows sub-categories of B, C and A municipalities and the number of municipalities in each category.

Table 1-2: Category B and C municipalities

Sub-Category	Description	No. off	Example
B1	Secondary Cities: Local municipalities with largest budget	31	Govan Mbeki Municipality
B2	Large Cities: All local municipalities with an urban or large town as core.	137	Msukaligwa Municipality
B3	Small Cities: They are characterised by no large town as a core urban settlement. Typically, these municipalities have a relatively small population, a significant proportion of which is urban and based in one or more small towns. Rural areas in this category are characterised by the presence of commercial farms, as these local economies are largely agriculturally based. The existence of such important rural areas and agriculture sector explains its inclusion in the analysis of rural municipalities.	31	Pixley Ka Seme Local Municipality
B4	Rural Areas: These are characterised by the presence of at most one or two small towns in their areas, communal land tenure and villages or scattered groups of dwellings and typically located in former homelands	27	Albert Lithuli Local Municipality
C1	District Municipalities that are not Water Services Authorities (WSA)	23	Gert Sibande District Municipality
C2	District Municipalities that are Water Services Authorities (WSA)	21	Capricorn District Municipality
A	Metropolitan municipalities	8	Tshwane Metro
Total		278	

Source: IRR (2014)

Figure 1.1 shows the location of the eight Metropolitan municipalities and the 44 district municipalities spread across the nine provinces of South Africa. The map shows nine provinces and the numbers indicate the district municipalities and the letters shows metropolitan municipalities. The list of municipalities is presented in alphabetic order.

Figure 1-1: South African District Municipalities and Metropolitans
Source: Municipal Demarcation Board (2003)
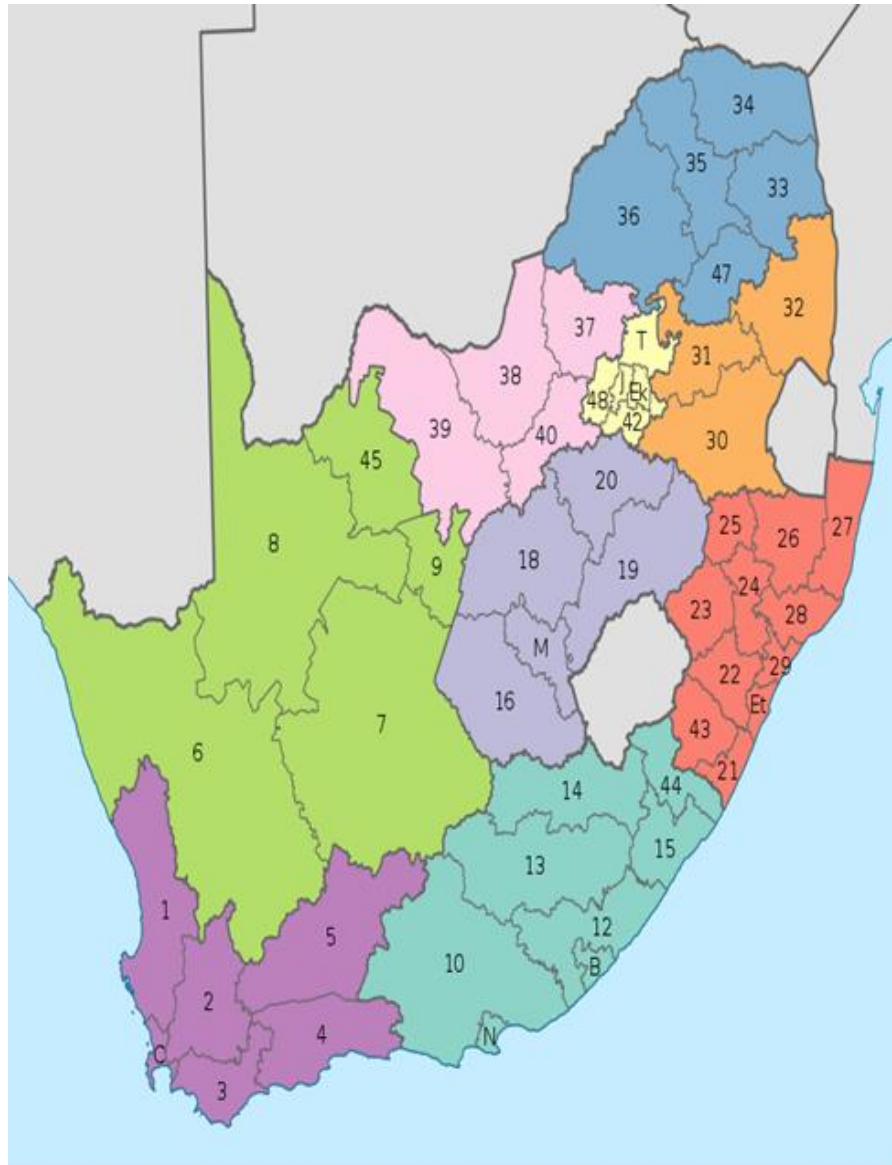
4 Alfred Nzo District Municipality
25 Amajuba District Municipality
12 Amathole District Municipality
37 Bojanala Platinum District Municipality
B Buffalo City Metropolitan Municipality
2 Cape Winelands District Municipality
35 Capricorn District Municipality
5 Central Karoo District Municipality
13 Chris Hani District Municipality
C City of Cape Town Metropolitan Municipality
J City of Johannesburg Metropolitan Municipality
T City of Tshwane Metropolitan Municipality
40 Dr Kenneth Kaunda District Municipality
39 Dr Ruth Segomotsi Mompati District Municipality
4 Eden District Municipality
32 Ehlanzeni District Municipality
Ek Ekurhuleni Metropolitan Municipality
Et eThekwini Metropolitan Municipality
20 Fezile Dabi District Municipality
9 Frances Baard District Municipality
30 Gert Sibande District Municipality
43 Harry Gwala District Municipality

29 iLembe District Municipality
14 Joe Gqabi District Municipality
45 John Taolo Gaetsewe District Municipality
28 King Cetshwayo District Municipality
18 Lejweleputswa District Municipality
M Mangaung Metropolitan Municipality
33 Mopani District Municipality
6 Namakwa District Municipality
N Nelson Mandela Bay Metropolitan Municipality
38 Ngaka Modiri Molema District Municipality
31 Nkangala District Municipality
15 OR Tambo District Municipality
3 Overberg District Municipality
7 Pixley ka Seme District Municipality
10 Sarah Baartman District Municipality
42 Sedibeng District Municipality
47 Sekhukhune District Municipality
19 Thabo Mofutsanyana District Municipality
21 Ugu District Municipality
22 uMgungundlovu District Municipality
27 uMkhanyakude District Municipality

24 uMzinyathi District Municipality
23 uThukela District Municipality
34 Vhembe District Municipality
36 Waterberg District Municipality
1 West Coast District Municipality
48 West Rand District Municipality
16 Xhariep District Municipality
8 ZF Mgcawu District Municipality
26 Zululand District Municipality

Local municipalities are embedded with the district municipalities. For an example, Figure 1.2 shows a map of Limpopo province in South Africa. The province is divided, for local government purposes, into five district municipalities which are in turn divided into twenty-five local municipalities. The district municipalities in Limpopo province are shaded with various colours and the local municipalities are numbered.
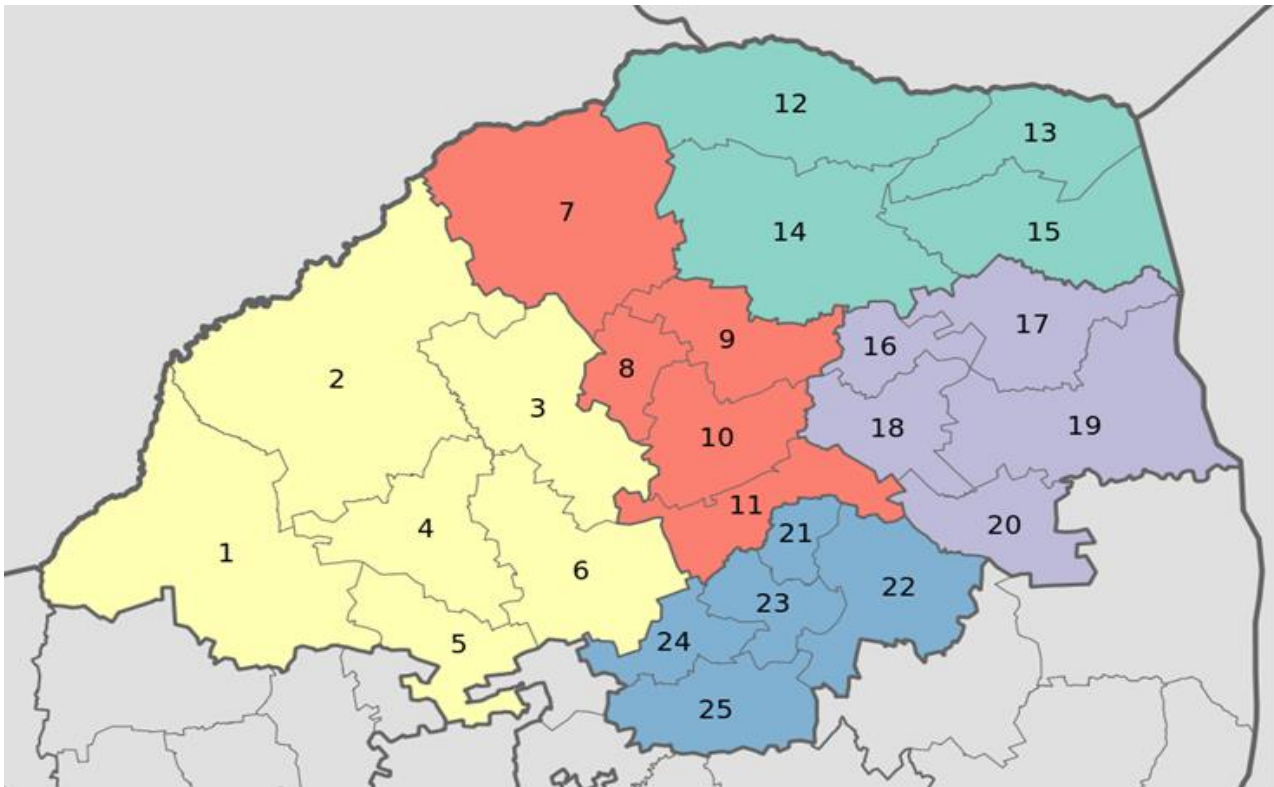
Figure 1-2: Local Municipalities in Limpopo
Source: Municipal Demarcation Board (2003)

1.3.2. Current state of local government

Section 153 of the constitution of the Republic of South Africa, stipulates that the municipality's role is to structure and manage its administration, budgeting and planning processes to give priority to the basic needs of the community, to promote the social and economic development of the community and also participate in national and provincial development programmes (Republic of South Africa, 1996).

According to Koma (2010), municipalities across the country have demonstrated huge deficiencies in as far the fulfilment of both their constitutional and legislative obligations are concerned. So the problems highlighted in the section above are not immune to the municipal level, in fact most of the municipalities are even worse off than the picture painted in the preceding section, according to Bowen *et al*. (2007). Even more serious challenges exist a municipal level where the municipalities must generate most of their budget from recovering the costs of local services provided to customers

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and from property rates. Several municipalities are failing to recover these costs due to poor infrastructure or simply due to the fact that they do not have the revenue base in their municipal area which allows for the running of the municipality in a sustainable manner (for example, category B municipalities which are mostly surrounded by rural areas where people are dependent on grants) (Bowen *et al.*, 2007). Furthermore, as reflected in various IDP reports, backlogs in sanitation, piped water services, electricity supply programmes, health and education remain a huge problem in South African municipalities (Ministry of Local Government and Housing, 1998). For example, the report on the state of local government in South Africa as cited by Koma (2010) indicates that pit latrines are still most common in some provinces such as Limpopo, with a 64,5% backlog and bucket toilets in the Free State sitting at 12,7%. Koma (2010) further indicates that Limpopo, the Eastern Cape and Kwazulu-Natal provinces recorded the lowest percentages of access to piped water, this is below the national average of 74,4%. These numbers are just an illustration of the seriousness of the service delivery backlogs across the country. Data compiled in 2011 and summarised in Table 1.3 indicates an example of a list backlogs with respect to the level of service delivery in municipalities, which can be attributed to the challenges listed above. This information is intended to paint a picture of the adversity faced by the population in respect of the service delivery problems in South African municipalities.

Table 1-3: Examples of service delivery backlogs in municipalities nationally

Service	*Backlog (% of services below adequate)*
Housing	17% of households
Water supply	9% of households
Sanitation	24% of households
Electricity	27% 0f households
Solid Waste	7% of households
Roads	14% of rural access roads are earth surfaced
	75% access road in rural and urban areas are in poor conditions
Public services	12% inadequate in urban areas
	65% inadequate in rural areas

Source: Development Bank of Southern Africa (DBSA) (2011)

However, it is acknowledged that each of the municipalities in the different categories face fairly unique conditions and challenges. The metropolitan municipalities, category B1 local municipalities and to a certain extent the category B2 local municipalities are well established and perform better in

regards to project (service) delivery in comparison to the rest of the municipalities, even though they still face sustainability challenges that are accompanied with high levels of household poverty (CoGTA, 2009). Category B3 and B4 are the most vulnerable from both a sustainability and an infrastructural development perspective as they mostly depend on the Municipal Infrastructure Grant (MIG) fund for their infrastructure development projects, this is due to their unsustainable revenue base (CoGTA, 2009).

According to the Support Programme for Accelerated Infrastructure Development (SPAID) (2008), category B municipalities are allocated a large share of the MIG fund and they are the municipalities with serious backlogs, more than any other category. Figure 1.3 shows the total number of projects split per municipal category and it is clear that many infrastructure projects are implemented by the category B municipalities. From Figure 1.3, category B3 and B4 are by far the municipalities with more projects than any other category. The reason for this is that these classes of municipalities are mainly in small cities and rural areas where infrastructure development is required the most. It is therefore important to note that the application of the principles of project management will increase the capacity of the municipalities, which is essential for these municipalities to be in a position to implement capital projects in an effective an efficient manner, while taking into consideration the aspects of costs, time and quality. For this reason, project management is an integral function of any municipality that has a developmental role, as prescribed by the constitution of the Republic of South Africa (Act 108 of 1996).
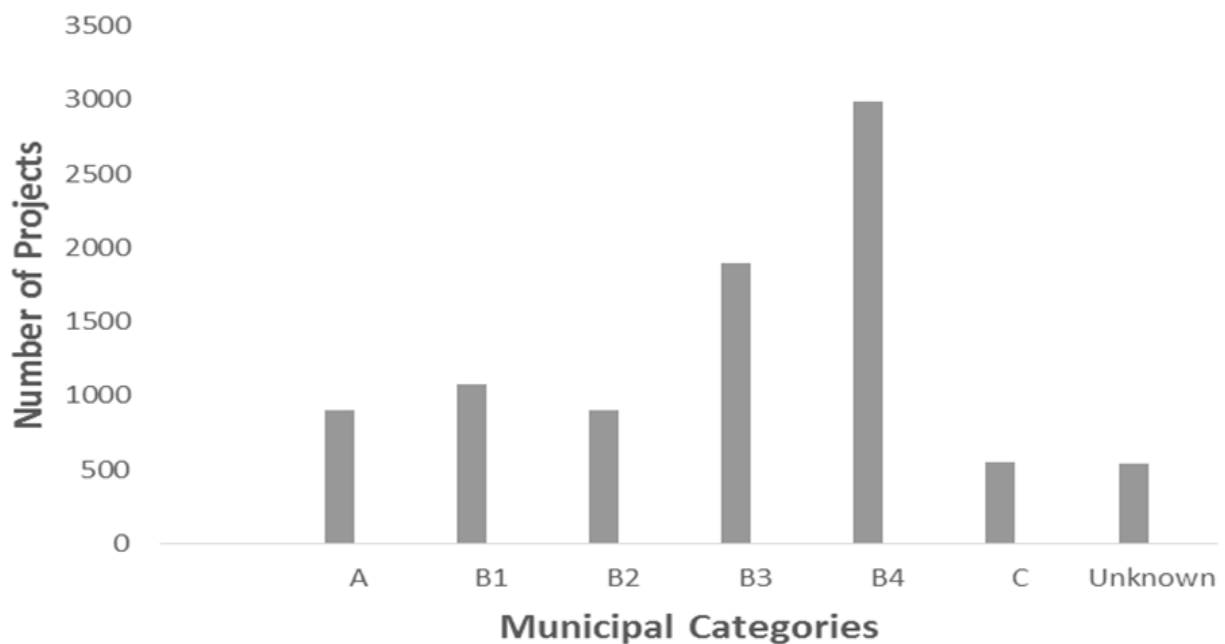
Figure 1-3: Number of projects split per municipal category
Source: SPAID (2008)

Some of the key service delivery challenges faced by all the municipalities are

i) The reality of managing complex infrastructure projects and responding to the various powers and functions assigned to municipal government (CoGTA, 2009).

ii) In 2009, there were 274 vacant senior management posts in municipalities (these senior posts are referred to as section 57 management posts in line with the Municipal Systems Act). This was a marginal improvement from the 280 vacancies in 2006 and category B municipalities were most affected as 24% of the section 57 management posts remained vacant positions (Ministry of Finance, 2011).

iii) CoGTA (2009) further alludes that some of the challenging elements in the current MIG approach includes

- The fact that the amount of funding allocated to smaller municipalities on a year to year basis is insufficient for large bulk infrastructure projects. This might therefore force the municipalities to look into the Public Private Partnership (PPP) model for large infrastructure projects.

- The fact that municipalities are not receiving the appropriate amount is informed by the formula and this often results in poor selection of projects.

- The fact that capital investment in category B municipalities remains a concern.

There is however, as indicated above, an attempt by the government to make municipalities (and all other all other spheres of government) more efficient in their service delivery programmes. This effort resulted in the introduction of PMOs in municipalities to improve service delivery. However, the traditional functional hierarchy within municipalities still remains the cornerstone of the organisation and project management is added as a secondary and temporary 'overlay' to deal with the co-ordination of projects as well as organisational and integration complexities (Brown, 1999). This is a challenge that embraces all spheres of government in South Africa. They (all spheres of government) are characterised by a bureaucratic approach which focuses on the administration of rules and procedures rather than on a service culture, hence the centralised and hierarchical managerial structures (Bowen *et al*., 2007). An organisational culture which is biased towards project management must be inculcated within the municipalities in order for these municipalities to be successful in their project management implementation.

1.3.3. PMOs in Municipalities

In the course of fulfilling both the constitutional and legislative obligations regarding the developmental mandate and service delivery, municipalities are utilising the services of PMOs within their structures as a strategy for addressing institutional capacity in dealing with their mandate. This

sub-section presents the legislative requirements regarding the municipal PMOs, including a documented process followed by municipalities establishing PMOs, the place a PMO occupies within the overall structure of the municipality, PMO programmes, the role of PMOs towards service delivery and PMOs vs municipal performance.

1.3.3.1.Legislative requirement

The Ministry of Local Government, within the South African government requires all municipalities to set up or share a PMO using guidelines from the Municipal Systems Act 2000 (Act No. 32 of 1998) and the Municipal Infrastructure Grant (MIG). This is in order guidelines in order to facilitate the implementation, monitoring and evaluation of projects through project management principles (Ministry of Local Government, 2000; Ministry of Local Government, 2007). The MIG is a grant allocated to municipalities. For this reason, the management of the grant at municipal level must occur within the planning, budgeting, financial management and operational arrangements within the municipality. The municipal manager as an accounting officer is responsible for the effective management of capital funds. Municipalities are expected to administer MIG funds and manage infrastructure projects, because all municipalities have to address infrastructure backlogs of one type or another. The aim, therefore, is to establish project management capacity in all municipalities. However, some local municipalities do not currently possess the necessary capacity to implement the MIG programme and it might take time to develop this capacity. In these cases, the approach is for the district municipalities to administer MIG funds and to provide project management capacity until the local municipalities are able to take over these functions themselves.

1.3.3.2.The process followed in establishing PMOs in Municipalities

A document titled '*A Guide for the Establishment of a Project Management Unit (PMU) by municipalities*' was developed by the department of provincial and local government in March 2007 (Ministry of Local Government, 2007). This document outlines the scope and the functions of PMOs within the municipalities and defines the location and the constitution of the PMO within the municipality.

The guideline indicates that a municipality will have to submit a business plan for approval to the National MIG Unit to establish a PMO in the first year of establishing a PMO and if a PMO is to be established at a district municipality, consultations should be made with the local municipalities and vice versa. It also indicates that, the PMOs have the following functions in relation to the municipalities they serve (Ministry of Local Government, 2007):

i) Responsibility for project management and administration of MIG funding, within the relevant municipal accounting system, for infrastructure projects of their own using MIG funds and for projects of other municipalities where they are delegated this authority;

ii) Coordination of the project identification process conducted by municipalities fulfilled by the PMO, in terms of the relevant IDPs;

iii) Coordination of the project feasibility process, with involvement of other municipal departments where appropriate, in terms of the relevant IDPs;

iv) Contract management which covers the establishment and approval of contracts with contractors and consultants for each project, including feasibility studies;

v) Project management, including ensuring that projects meet planning objectives;

vi) Coordination of project-based capacity building initiatives: the PMO is responsible for ensuring that project-related capacity building and development objectives are met; and

vii) Management of MIG Management Information System (MIG –MIS) for the registration of projects, facilitate the capturing of backlog information, monitoring and preparation of all necessary reports.

viii) Build capacity to operationalise and manage the MIG-MIS

According to this document, the PMOs are responsible for project management and the administration of MIG funding, within the relevant municipal accounting systems, for infrastructure projects (Ministry of Local Government, 2007). It means that, the units are responsible for the guidance and provision of expertise in terms of the project and program management of the MIG. The MIG is a national government initiative that provides conditional grants or finance aimed at covering the capital cost of basic infrastructure projects. The PMOs are also responsible for the overall co-ordination of the Extended Public Works Programmes (EPWP's) in the municipalities, including the management and mentorship of the emerging contractors and reporting to the Department of Public Works, in terms of specific Key Performance Indicators (Ministry of Local Government, 2007). The guide further states the details and qualifications of the human resources to be deployed in the PMO, which should also be forwarded to the district municipality or local municipality (Ministry of Local Government, 2007). It further stipulates that only one suitably qualified PMO manager or engineer should manage the PMO on a full-time basis with the following additional team required to resource the functions of the PMO:

i) Engineer;

ii) Technician;

iii) Secretariat;

iv) Financial personnel;

v) Legal personnel;

vi) Administrative personnel;

vii) Occupational Health and Safety (OH & S) personnel

viii) Data Capturer;

ix) Information Technology (IT) personnel; and

x) Community officer/communications personnel.

1.3.3.3.The PMO within the overall structure of the Municipality

The municipal manager (the CEO of the municipality) remains responsible for the overall success of the MIG programme and for the utilisation of the capital funds in their capacity as the accounting officer. The PMO manager is responsible for the day to day management of the PMO and there is no certainty on whether the PMO manager should report directly to the municipal manager or to the technical director, practically, each municipality is incorporating the unit wherever it deems fit within the institution, without clear guidelines on where and how to position the unit within the institution. Although due to the decision making powers resting with the municipal council, which will then cascade to the municipal manager and the technical director, it could very well be that, the PMOs are intended to be located within the technical directorates. If this is the case, it may therefore mean that the PMO managers do not get to have sufficient authority to make decisions to execute the functions stipulated in the preceding section. The guideline document stipulates that the PMO manager is normally expected to report to the technical director, as the PMOs are located in the technical departments (Ministry of Local Government, 2007).

However, Figure 1.4 shows a typical example of a structure of a municipality with its own PMO, in line with the guidelines as provided by the Ministry of Provincial and Local Government (2004). From Figure 1.4 the municipal manager reports to the municipal council and there are various directorates that report to the municipal manager such as technical services, treasury and planning. As depicted on Figure 1.4, the PMO is not an executive directorate, as the division is deliberately positioned below the executive directorates such as the technical services directorate. But Figure 1.4 shows that the PMO is reporting directly to the municipal manager's office and maintains some relationship with key strategic directorates. In addition, it is important to note from Figure 1.4 that planning is positioned as an executive directorate separate from the PMO and there is a linkage, which means there is a working relationship between planning and the PMO. This relationship is obviously maintained to ensure that IDP is converted into the infrastructure projects to be implemented by the

PMO. Also, the technical directorate is expected to play a role of providing oversight in relation to the PMO while the treasury is responsible for the financial management function of the projects implemented by the PMO. What makes this arrangement even more confusing is that Ministry of Provincial and Local Government (2004) indicates that the technical services directorate is expected to play a role in planning activities as well as taking over the infrastructure once complete.
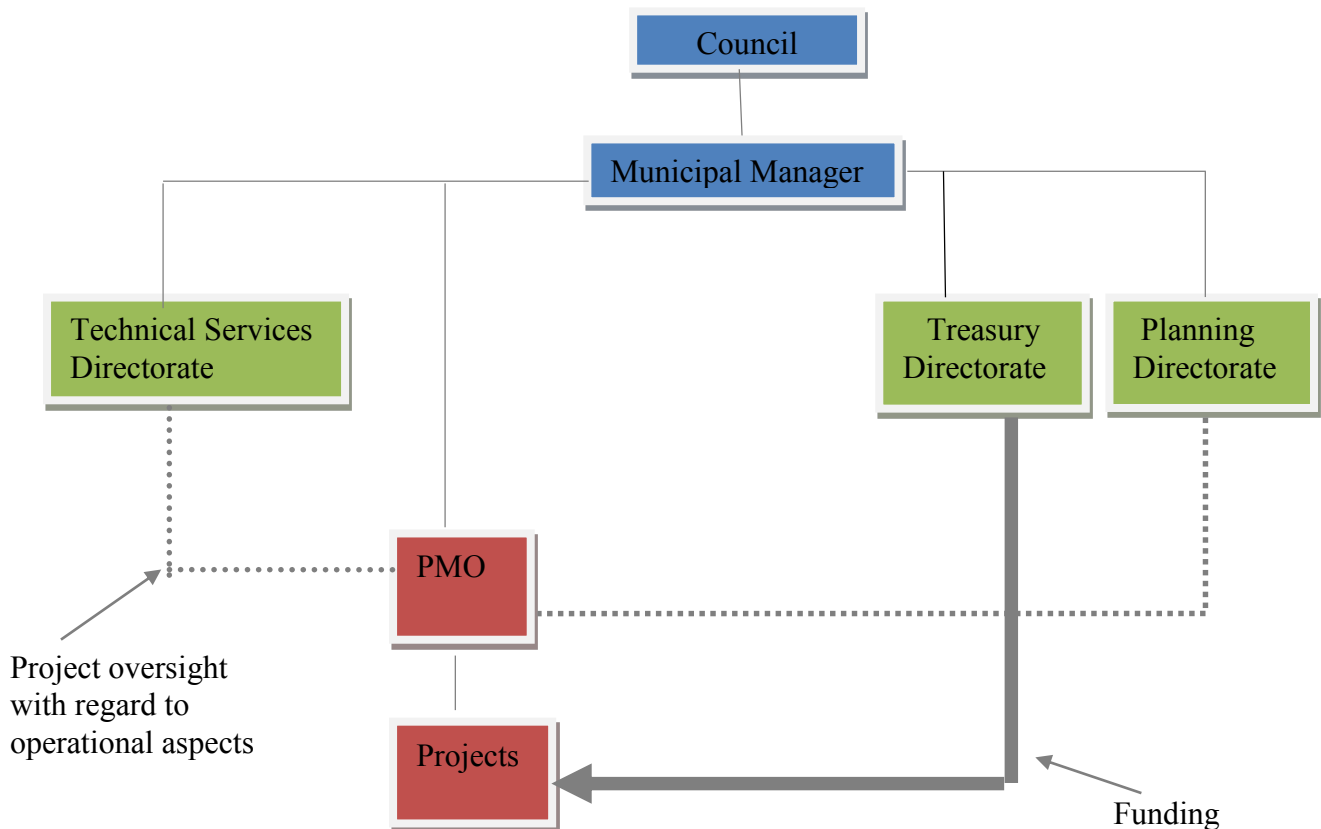
Figure 1-4: Typical structure of a municipality with PMO
Source: Ministry of Provincial and Local Government (2004)

There is confusion as to whether this structure represents a standardised requirement for all the PMOs in municipalities. Theoretically, each municipality should determine its structure and composition based on the strategies and the IDP objectives of each municipality. For example, Figure 1.3 depicts a graphical representation illustrating that category B3 and B4 would under normal circumstances have a bigger slice of the projects and therefore depending on the size or the number of the projects alone. Municipalities in these categories would normally be expected to have a bigger staff complement within their PMOs than other categories. For example, when the PMO is faced with multiple projects, it could be efficient to have a program manager who is responsible for the program and individual project managers for each project.

1.3.3.4.Municipal PMO programme/project cycle

Municipal PMOs are responsible for project implementation, monitoring including the provision of support functions from the beginning to the end of the project. The programmes within the PMO are aligned to the PRINCE2 project cycle and they also reflect key elements of the traditional cycle as advocated by the Project Management Body of Knowledge (PMBoK) (PMI, 2004; OCG, 2009). Figure 1.5 shows the municipal PMO programme process or project cycle. Within the PMO programmes, there are planning and reporting requirements which reflect both the programmatic and project perspectives.

Interestingly, it is worth noting another confusing aspect which is based on the guidelines provided by the Ministry of Local Government (2004), which indicate that planning is an independent directorate on its own as depicted in Figure 1.4. Whereas Figure 1.5 shows that the Integrated Development Planning programme (IDP), which is expected to be a key activity of the planning directorate, falls within the jurisdiction of the PMO. The logical explanation to this confusion, although it is not explicitly articulated in any of the documents, this could be explained by the fact that the guidelines may have been updated as per the Ministry of Local Government (2007). So, with the Integrated Development Planning programme (IDP) as shown in Figure 1.5 being within the jurisdiction of the PMO as per the process cycle. Planning takes place at the programme level and covers key elements such as, the projects identified in the IDP including the development of the MIG project proposals, checking the feasibility of projects, ensuring alignment between the project, budgets and the MIG allocation. It is necessary to prepare a three year capital plan, including the preparation of a three year operational plan, which has to illustrate that there is sufficient operational budget in the future to fund the ongoing operation and maintenance of the infrastructure (Ministry of Local Government, 2007).

Once the IDP process is complete, it must then be submitted to national government for approval. Other key process milestones that must be submitted to the national government for approval are highlighted in orange. Some of the key activities such as project implementation/execution, monitoring and evaluation are clearly indicated in the project cycle. Even though the PMO develops a three year operation and maintenance (O&M) plan for the projects, the O&M activity happens beyond the projects' life and therefore falls outside the mandate of the PMO. This can be explained by the MIG not covering the operations and maintenance budget.
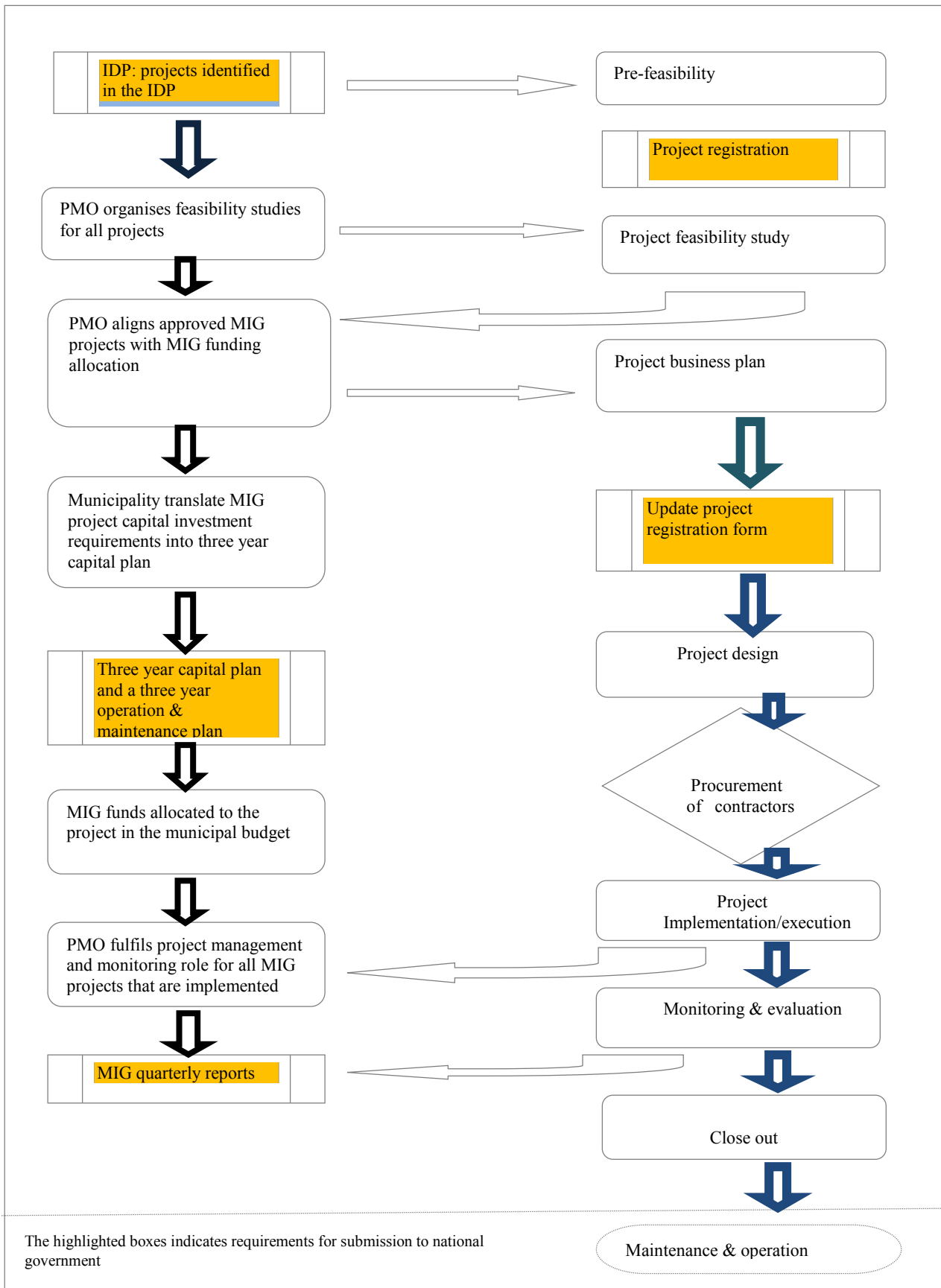
Figure 1-5: Municipal project process cycle
Source: Ministry of Local Government (2004)

The highlighted boxes indicates requirements for submission to national government

Once a project has been approved in line with the programme processes in Figure 1.5, the PMO is subsequently given the responsibility of overseeing the process to ensure that the project is delivered effectively (Ministry of Provincial and Local government, 2004). This means that the PMO must take responsibility for the overall management of the project through the project's cycle. Traditionally, the project's cycle includes the following phases: planning (or design) phase; construction phase; and the operations and mentoring phase.

The project management responsibilities will depend upon who implements the project. The project is usually implemented by PMO unit within the municipality, or it may be implemented by an external implementing agent, where the municipality does not have the capacity or does not have the PMO. Some examples include private sector firms, or non-governmental organisations, or other consultants and contractors (Ministry of Provincial and Local government, 2004). If an external implementing agent is contracted to implement the project, the PMO is responsible for the selection and appointment of the contractor, as well as managing the contract and monitoring implementation within the ambit of the municipal procurement policy and Municipal Finance Management Act (Ministry of Provincial and Local government, 2004).

The MIG funds municipalities for various projects of a similar nature, namely; infrastructure projects for service delivery. Figure 1.5 highlights the MIG programme processes in line with traditional programme/project process that is aligned with both PRINCE2 and the PMBoK's project management principles.

1.3.3.5.The role of PMOs towards Service delivery within the municipalities

The role PMOs occupy within the municipalities is centered on MIG infrastructure projects which include, for example, electricity, water supply, sanitation, storm water management, municipal road construction and maintenance, refuse removal and the provision and maintenance of street lighting (Ministry of Local Government, 2004). Therefore the MIG programme is in fact about planning and delivering municipal infrastructure, basic services and it is an integral part of the sustainable infrastructure development function of the municipality. The programme is directly implemented within the PMO of the municipality. The PMO is a ring-fenced unit within the municipality that is dedicated to managing infrastructure projects (Ministry of Local Government, 2004). Figure 1.6 illustrates that the PMO within the municipality is directly accountable for service delivery, which is attained through infrastructure development. The PMO acts as the link between the infrastructure

development and the MIG programme, which is defined through the IDP process. From Figure 1.6, the PMO is therefore a municipal tool for infrastructure development and service delivery.

Service delivery

Infrastructure development

PMO

MIG Programme
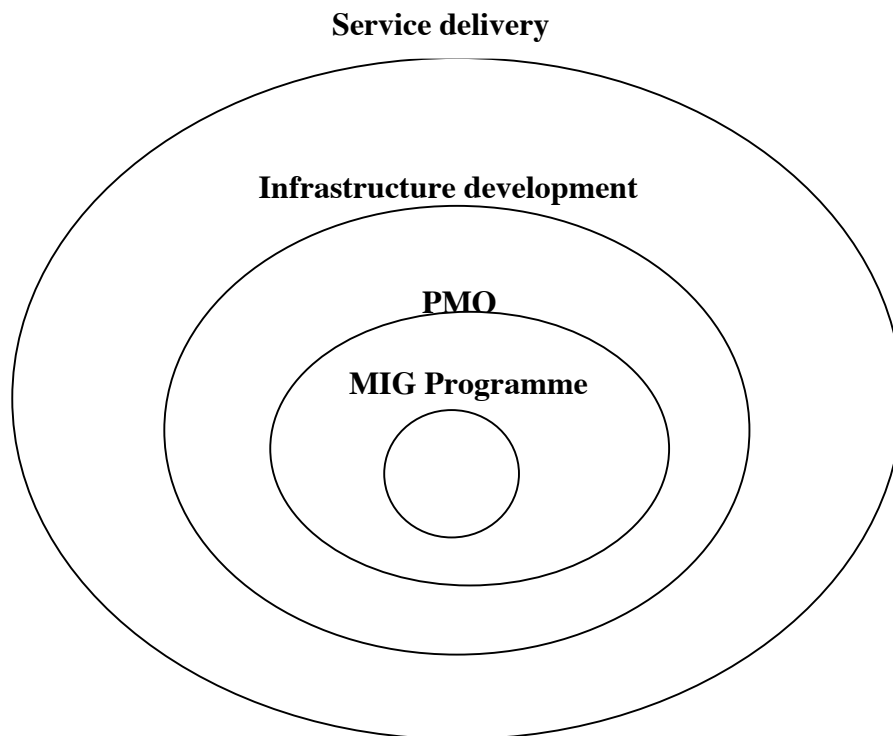
Figure 1-6: The role of PMO in the municipality

Figure 1.7 shows the link between the PMO and service delivery. It is crucial to indicate that the service delivery obligations are realised through project implementation. Project implementation is a core function of the municipal PMOs, whose mandates are described within the limits of infrastructure development and sustainability. Sustainability means ensuring that infrastructure services continue to operate effectively and generate benefits over the planned life of the constructed infrastructure. In respect of the MIG, sustainability starts with the IDP process. Sustainability will be compromised if the IDP process is not properly undertaken. Sustainability starts with ensuring that a project is feasible. This is why the MIG requires project feasibility studies. How these PMOs are established and operate directly influences their outcome, which is service delivery.

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                              │   PMO   │
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                                   ▼
┌──────────────────────────┐   ┌────────────────────────┐   ┌──────────────────────────────┐
│ Infrastructure development│──▶│ Project implementation │◀──│ Sustainability development   │
└──────────────────────────┘   └───────────┬────────────┘   └──────────────────────────────┘
                                            │
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                                  ┌───────────────────┐
                                  │  Service delivery │
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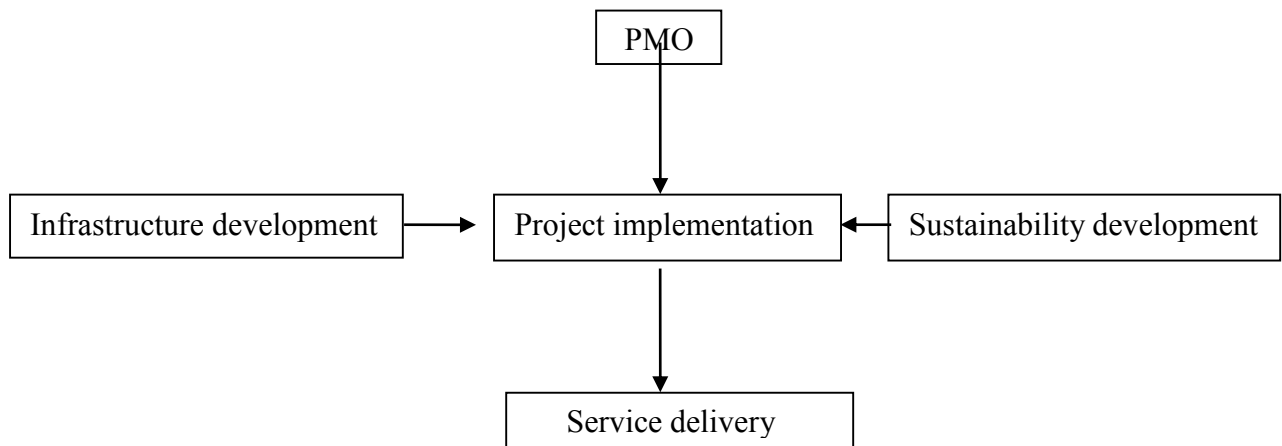
Figure 1-7: The relationship between PMO and service delivery

Even though Figure 1.7 links the PMOs to service delivery through project implementation, it should be noted that certain aspects of service delivery may not necessarily be attributed to the PMO. The municipal PMOs are operating within the limitations of the MIG funding structure, whose mandate it is to implement the infrastructure projects within the municipality (Ministry of Local Government, 2007). There could be some municipal service delivery related activities that could be attributed to political delays and disruptions and therefore not necessarily fall within the scope of the PMO. These may be some of the key pillars of service delivery protests. However, both infrastructure development and the overall sustainability of development in line with capital budget and/or the MIG, as outlined in the IDP of each municipality, are key ingredients to project implementation and therefore form an integral part of service delivery.

1.4.Gap in Knowledge

The main gap in knowledge within the topic under study is that that there is no clear conceptual framework for establishing PMOs within a public sector context considering the fact that the public sector may be having a set of unique characteristics when compared to the corporate private sector. When developing MIG guideline the Department of Local Government may not have had an appropriate or adequate source or guideline from which they could have drawn a relevant model and framework which could have properly guided the formation of these units in the municipalities. The framework with which the municipal PMOs was founded was inadequate in providing the appropriate guideline for establishing an effective PMO.

1.5.Problem Statement

Research indicates that PMOs can be useful in undertaking project planning and the sustained implementation of projects, in addition they can contribute towards overall organisational performance (Aubry & Hobbs, 2011). A fully developed and effective PMO should have the capacity to provide services and organisational focus, both in the core and the supporting areas of project management in order to achieve the strategic goals of the organisation. Over and above that the PMO helps provide clear ownership and accountability of project responsibilities (Van der Waldt, 2001). They can make a direct contribution to the organisation's return on investment (ROI) or customer satisfaction in the case of the public sector, where strategic objectives are not necessarily expressed in terms of profit or value created for shareholders (Aubrey *et al*, (2011). Globally, PMOs contribute positively to infrastructure development and service delivery (Aubry & Hobbs, 2011)

PMOs in municipalities are responsible for overseeing the process of ensuring that infrastructure projects are delivered effectively (Ministry of Provincial and Local government, 2004). This means that the PMO must take responsibility for the overall management of the project using project management principles (Ministry of Local Government, 2000; Ministry of Local Government, 2007), providing appropriate guidance and expertise in terms of project and programme management of the MIG. Surplus to that the PMO must establish the overall co-ordination of the Extended Public Works Programmes (EPWP's) in the municipalities, including the management and mentorship of the emerging contractors and reporting to the Department of Public Works in terms of specific key performance indicators (Ministry of Local Government, 2007). However, it appears that PMOs are not based on any framework for project management governance and/or methodology. Although armed with the best of intentions, these municipal PMOs are haphazardly implemented without clear a framework and as a result, service delivery objectives are difficult to achieve.

South Africa is currently ravaged by service delivery protests all over the country, mostly as a result of service delivery backlogs in respect of capital infrastructure projects. The role of PMOs in addressing or reducing these backlogs cannot be overlooked. These service delivery backlogs may be as result of deficiencies within the PMOs. There is need therefore to investigate the role of these PMOs, how they are established and how they operate, taking into consideration all factors that influence the effectiveness of the unit. Making PMOs efficient and effective can be one of the viable solutions to the service delivery challenges.

1.6. Research Aim and Objectives

The aim of this research study is *to develop a conceptual framework for the establishment and operation of PMOs in the South African Municipal Environment*. In pursuit of the study aim, the research study was guided by three main objectives:

i) To identify and analyse the principles/factors considered in establishing PMOs in the three selected South African municipalities.

ii) To analyse the level of fitness for purpose of the PMOs in the three selected municipalities

iii) To analyse patterns of municipal dependent factors that dictate the type of PMO that is suitable for the municipalities

1.7. Scope of the research

The overarching aim of this research project is indicated in the above section together with its set of objectives. In order for these to be achieved, the set of boundaries and/or parameters are defined in this section. The literature review and the subsequent theoretical framework laid a foundation for the conceptual model upon which the proposed framework was based. The unit of analysis in this research was the PMOs within the three selected South African municipalities. There are 278 municipalities divided into three categories in line with their sizes and their geographic nature, it would be impossible to undertake an in-depth analysis of each municipality and its PMO. Therefore parameters of this study were limited to three municipalities with representation in both category B and C, which are local municipalities and district municipalities respectively. Category B & C municipalities are the municipalities with most number of on going capital projects and they are currently experiencing backlog problems, which leads to the questioning of the efficiency of the PMOs. A uniform specific grouping within these municipalities was targeted. The grouping comprised of individuals who have either participated in the formation of PMOs or its operations and implementation of municipal projects thereof. A multiple case study approach is conducted on two category B and one category C municipalities in Limpopo province.

1.8. Expected contribution of the research

The most important contribution this study makes is embedded in the concept of PMOs in public sector. The research will therefore contribute to the body of knowledge by developing a conceptual framework for the PMOs in South African municipalities, so as to equip decision-makers with tools they need to take appropriate strategic action and policy directions. Section 5.3.2.8 provides a process

flow chart for establishing PMOs in the municipal environment in a summarised flow diagram for practical purposes.

In the knowledge and research field, the developed framework will go a long way in bridging the current gap in knowledge and the research work in its totality and exposed serious areas of lack and deficiencies around PMOs in general which have to be taken into considerations when establishing PMOs. This research is regarded as the stepping stone in harmonising the theories around PMOs with the PMOs in public sector while appreciating the dynamic and complex nature of PMOs in municipalities.

1.9. Thesis outline

Figure 1.8 illustrates the structural plan of the thesis and also presents a flow diagram of the thesis designed to illustrate the knowledge stream and the contribution of each chapter towards the overall objectives. The rest of the thesis comprises of six chapters

Chapter two focuses on the literature review which mainly deals with the theory and practice of PMOs across the spectrum. It defines and analyses the nature of an efficient and effective PMO from a theoretical perspective. The purpose of this chapter is to investigate the theoretical and the practical base of issues highlighted in the research problem, particularly the issue of how PMOs are established or should be established and implemented.

Chapter three focuses on the research design and the applied methodology for the research. This will include the data collection methodology. The chapter provides a theoretical background for various research strategies and lays a theoretical foundation on which the research strategy employed to collect and analyse the research data is premised. Furthermore, the chapter provides the plan of action that will be followed throughout the various stages of research. The selected strategies will be justified in this chapter, as well as issues relating to limitations of the study and ethical considerations which will be addressed in this chapter.

Chapter four presents research findings arising from the investigation into the PMOs in South African municipalities. A detailed analysis of the results using NVIVO 11 for coding and categorising data was conducted. The findings will then be synthesised in relation to each objective to determine the ultimate aim. The ultimate aim is to develop a conceptual framework for the establishment and operation of PMOs in South African municipalities.

Chapter five presents the model and framework and describes each variable of the model and framework in detail. It also presents core activities of the model in detail. The chapter also provides a practical guideline for establishing and operating a municipal PMO.

Chapter six presents recommendations and the conclusions of the research. Major recommendations and conclusions of the study will be discussed in detail in this chapter. The gap in the body of knowledge is clearly outlined as well as how this identified gap was dealt with in the research.
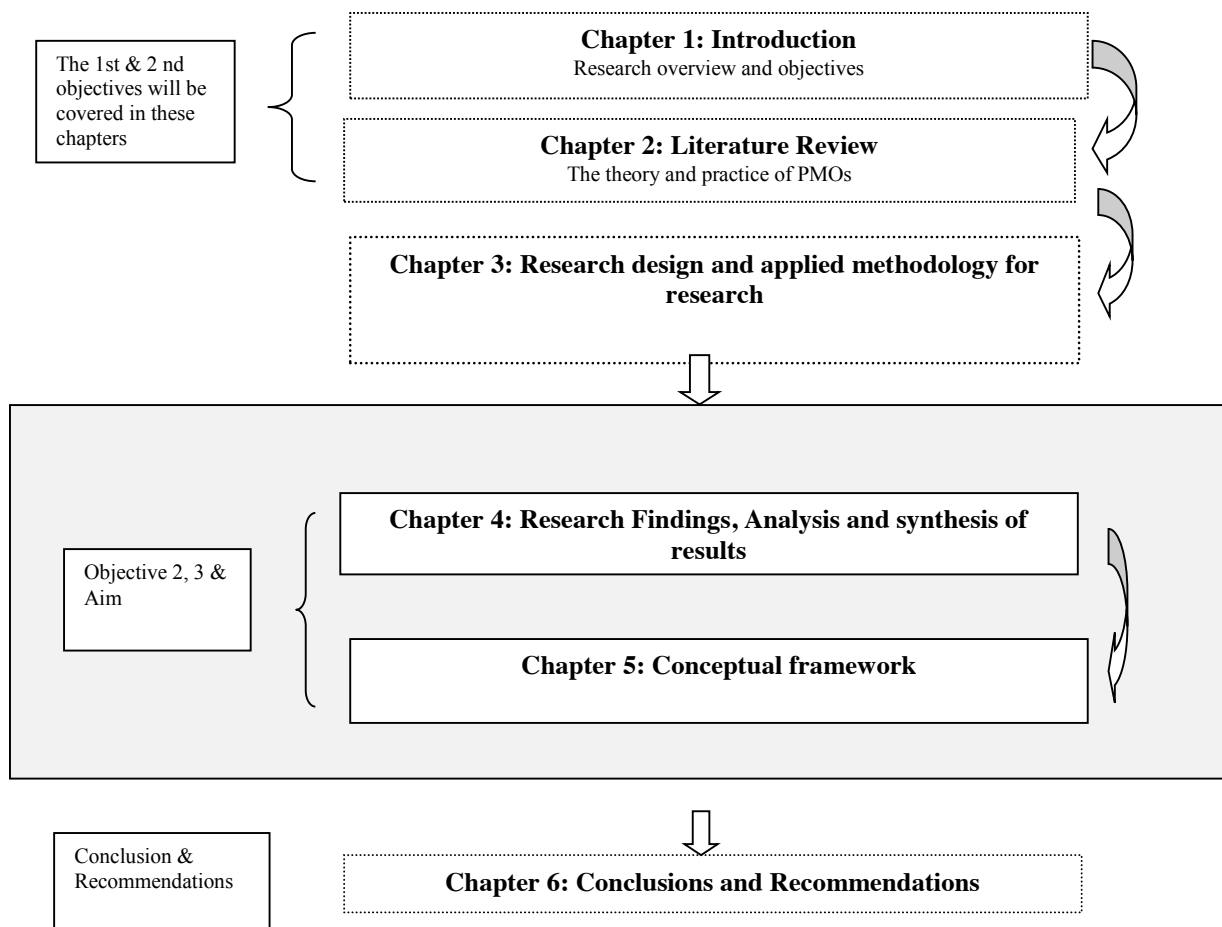
Figure 1-8: Structural plan for the thesis

1.10. Chapter summary

Chapter one has provided an introductory overview of the research by highlighting the aim of the research in the area of PMOs in municipalities and set up the context and environment within which the PMOs could be established and operationalized successfully. It has also portrayed an overview of project management in the public sector and a more detailed theoretical review of the current PMOs in municipalities, by analysing their nature and how they are established. Project management in the public sector and in municipalities in particular is also discussed, to provide a general overview of the level of project management maturity in the public sector in South Africa.

The chapter also describes the problem statement, research aim and objectives, scope of the research and the expected contribution of the research to the body of knowledge concerning the topic under research. In conclusion, the chapter provides the outline for this research.

CHAPTER 2: THEORY AND PRACTICE OF PMOs

2.1. Introduction

This chapter provides for a detailed review of the literature concerning PMOs. The purpose of the literature review is to investigate the theoretical and the practical base of issues highlighted in the research objectives and the ultimate aim which is to develop the conceptual framework for the establishment and operation of PMOs in South African municipalities.

The chapter is divided into seven parts with the next sections dealing with the concept of the PMOs, a narrative on the best practice for PMO methodologies, and a theoretical perspective on establishing and operationalising a PMO. The last two sections entail an analysis of an effective PMO and PMO performance variables, and a chapter summary in conclusion.

2.2. The concept of PMOs

This section outlines in detail the evolution of the PMOs, a broader definition of PMOs and corresponding analysis, and the purpose and functions of PMOs.

Literature as indicated in Gardener Research Group (2000); Kendall & Rollings (2003); Bolles (2002); Dai & Wells (2004); Hobbs & Aubry (2007) and Hobbs & Aubry (2008) provide limited empirical data on the definition, typology, levels/positioning, competencies and functioning/activities of a PMOs in an organisation in general. For an example, the cited literature displays differences in both the definition and typology of PMOs and other authors do not see the importance of aspects such as positioning, functioning, size etc. as they explore the concept of PMO. However, a further research on available literature showed significant amount of effort carried out on the PMO concept.

2.2.1. Evolution of PMOs

PMOs have their origin in the middle of the 20th century when the defence industry particularly in the United State of America (USA) needed to coordinate large, complex contracts that included many projects for a single large customer (Julian, 2008). However, the systematic study of PMOs has only truly begun in the last 20 years, where we have had a rare evidence of Project Management Offices (PMOs) with other names such as Project Office (PO), Project Support Office (PSO), Project Portfolio Management Office and Project Management Centre of Excellence (PMCoE). With its role ranging from just project oversight, encompassing support, to strategic planning at the highest level of management organisations, portfolio management and programme management, including

planning, control and reporting (Do Valle, E Silva & Soares, 2008). Dai & Wells (2004) have found that, the majority of PMOs were established in the mid-1990s to 2000 for different motivating factors. Two of these factors were first, to improve all elements of project management and second, to achieve a common project management approach.

PMOs were also established to provide operational support to different projects in an organisation; support the project management processes and even assisting the selection of projects according to strategic plans; as well as benchmarking of processes and results; and contributing to the enhancement of maturity and effectiveness of the companies in project management (Do Valle, E Silva & Soares, 2008). Dai & Wells (2004) attempted to separate PO (Project Office also called it Programme Office) from PMO (also called it Project Management Centre of Excellence). They (Dai & Wells, 2004) defined the PO as an organisational entity established to manage a specific project, or related series of projects usually headed by a project or programme manager. PMOs as an organisational entity were established to support project managers, teams of staff at various management levels in respect of strategic matters and functional entities in the organisation, in implementing project management best practices, methodologies, tools and techniques. Although, according to Bolles (2002), these titles or names have often been used interchangeably and it is usually a matter of personal preference rather than application of any particular standard. The Office of Government Commerce (OGC), (2008) maintains that there is no 'one size fits all' approach – the model to be deployed in an organisation will depend on various factors, such as the vision and goals of the P3O® (Portfolio, Programme and Project Office) sponsor, needs of the businesses , the programme, project and risk management maturity of the organisation. Other factors include the size of the resource pool, the numbers of programmes and projects being undertaken, and the political and cultural environment. The business divisions, departmental structure, geographical location of staff and the maturity of matrix management structures also play a part in how the P3O® is structured.

2.2.2.   Exploring PMOs: a broader definition and analysis

Kendall & Rollings (2003) define a PMO as the centre of intelligence and coordination, which allows a link between strategic objectives of the organisation and the related practical day to day activities through portfolio, programme and project management. This definition is aligned to with Do Valle, E Silva & Soars' (2008) classification of different PMOs that an organisation may adopt and they are:
  i.   Strategic: Strategic Project Office (SPO) – this is a unit whose role is to identify, select, and prioritise the projects in line with the strategic objectives of the organisation.

ii. Directive: Program Management Office (PMO) – this unit is responsible for defining the guidelines, standards and templates, in addition to ensuring the application of project management best practices, tools, techniques and software in project management processes.

iii. Support: Project Support Office (PSO) – PSO provides support for the application of project management best practices, tools, techniques and software in project management processes.

iv. Hybrid: Combination of two or more of the above.

Do Valle, E Silva & Soares (2008) describe it as an innovative concept for the successful implementation of project management best practices and an appropriate platform for the promoting and establishing the project management methodologies in companies, as well as developing the corporate governance procedures. This is achieved through an effective and integrated planning and control of projects as a critical success factor for the continuous improvement of management processes.

Also, the definitions of a PMO according to the PMI (2004), APM (2006) and OGC (2008) are of great importance in this research. The PMI (2004: p17) says *"it is an organisational body or entity assigned various responsibilities related to the centralised and coordinated management of those projects under its domain. The responsibilities of the PMO can range from providing project management support functions to actually being responsible for the direct management of the project"*. The phrases 'various responsibilities' provide for a safe and broad definition as they are covering all the realities encountered empirically (Aubry, Hobbs & Thuillier, 2007).

The phrase 'centralised and coordinated management' is also well crafted and empowers the PMO by changing it from just being a lame duck. It means that the PMO is able to not only support but also provide for the identification and development of the project management methodology, best practices and standards; centralised management (and that includes but is not limited to coordination, communication and monitoring) of all projects under its domain (Project Management Institute, 2004). This means PMOs should be able to be directly responsible for the entire project implementation from support, execution, monitoring and commissioning and project handover.

The PMI's (2004) definition is supported by the APM (2006)'s definition, which also clearly mentions that the PMO's defined role can range from simple support functions for a project manager, to being responsible for linking corporate strategy to project execution. However, the APM (2006) clearly indicates that there are various PMOs for various purposes, for example, there can be a PMO

responsible for excellence in project implementation or execution. This kind of PMO will therefore enable senior management to make business decisions and concentrate on exceptional management for the project. There can also be a PMO that takes on a strategic role which will therefore be responsible for the execution of corporate strategy through project and programme implementation. So each PMO can be clearly defined according to its intended purpose.

Whilst PRINCE 2 does not have a clear cut definition of PMO, it describes it as a centre of excellence which defines standards (such as processes, templates and tools) and provides support services such as skills, training and possibly independent assurance functions to a number of projects (OGC, 2009). However OGC (2008) has developed an OGC's guidance Portfolio, Programme and Project Office (P3O) model which provides the structure, governance, functions and services required for defining a balanced portfolio of change and ensuring the consistent delivery of programmes and projects across an organisation or department. According to P3O® model, PMO could successfully take many forms – from a single all-encompassing physical office to a complex model made up of a permanent Portfolio Office supported by permanent hubs and temporary Programme/Project Offices.

Even though PRINCE2 limits its definition to a support function within a context of a Centre of Excellence, OGC (2008) has produced a P3O guide which is intended to supplement PRINCE2. It also clearly complements the approach of the Association for the Project Management Body of Knowledge (APM BoK) when defining each PMO in line with its intended purpose. For example, the P3O model suggests that offices such as the centre of excellence, Programme and Project Offices will also have different functions. The Centre of Excellence (CoE) for example will be primarily responsible for standards, consistency of methods and processes, knowledge management, assurance and training and various other functions.

Martin, Pearson & Furumo (2007) define a PMO as a formal, centralised layer of control between senior management and the project management function. This definition is rather restricted due to the structural nature of the PMO. However, the fact that the definition acknowledges that the PMO ought to have some control at the senior management level makes it important for this study, as it highlights the aspect of authority required by the PMO within the organisation.

Curlee (2008) has brought forward another dimension of the PMO, that of a centralised and decentralised PMO, illustrating the effectiveness of each type. In a centralised PMO, the organisational structure is designed such that the project team including the project manager report to the administrative chain of command, which assigns the projects to the project team within the

PMO. In the case of a decentralised PMO, there is no central decision making authority and the unit is responsible for maintaining the project management methods, training and best practices (Curlee, 2008). This dimension brings a structural typology that may have to be unravelled further in determining the effective structure of a PMO.

A new perspective of a PMO as a knowledge broker has also emerged and was investigated in two studies (Desouza & Evaristo, 2006; Julian, 2008). Utilising this perspective, a PMO is described as an organisational unit facilitating the coordination of knowledge and other resources between the Project Based Organisation (PBO) and its projects. It can therefore act as a bridge for organisational and knowledge boundaries (Pemsel & Wiewiora, 2013). In this definition, a PMO exists within the context of a PBO and therefore project management maturity of an organisation is assumed to play an important role. This is because for an organisation to develop into a PBO, some form of maturity must exist in that organisation. The definition also places emphasis on PMO as a knowledge bank, which facilitates knowledge transaction between the project and the organisation. However, Pemsel & Wiewiora (2013) acknowledge that there is need for a further research into PMOs as knowledge brokers. Artto *et al*. (2011) describe a PMO as a specialised unit, being just one in a group of many mechanisms for the integration of various activities within the organisation. It spans various organisational sub-units within a firm to coordinate the activities that take place between these units. However, Artto *et al*. (2011) point out the two gaps that exist within PMO literature. First, being that the PMO literature focuses on project execution. Second, is that the existing PMO literature is highly practical and does not extensively use an established theoretical base for assessing the concept of a PMO. Of importance to note from this perspective is that, Artto *et al*. (2011) drive a notion that a PMO can either be a formal or an informal organisational unit, whose assessment is a matter of organisational structure and design created in order to coordinate and integrate activities. The *integrative* aspect in this description is a helpful perspective that is often omitted in other definitions.

Another dimension emerges from Bates (2003) who describes PMOs as a corporate-level function that provides support, methods, procedures, systems, and a policy for project management across the organisation. As in the definition, Bates (2003) argues that the PMO is not usually, but can be, responsible for the execution of individual projects. This aspect is dealt with in a study called 'An Empirically Grounded Search for a Typology of Project Management Offices' by Hobbs & Aubry (2008) a distinction between multi-project PMOs and single-project PMOs is highlighted.

However, PMOs are more sophisticated than what is depicted above. Available research has shown that PMOs vary considerably from each other (Hobbs & Aubry, 2007; Hobbs & Aubry, 2008).

Desta, Root & Diederichs (2006) have attempted to appreciate the complexity of the PMOs by providing a multi-level definition. Desta, Root & Diederichs (2006) therefore define a PMO as a series of levels where a 'level-one PMO might support a single project, a level-two PMO would support several projects under the same programme, a level-three PMO would support a division or departments of an organisation with all its projects. A level-four PMO would support the organisation within its projects and a level-five PMO would be placed strategically positioned at an executive level, supporting business strategy and resource allocation at an enterprise level (Desta, Root & Diederichs (2006). This description is however still very vague and lacking at best. While it appropriately addresses a PMO in line with the level of maturity of the organisation to a certain extent, it does not sufficiently address the role of the PMO. It only focuses on the support function. Under this definition, one cannot tell to what extent the powers of PMO are able to be executed, furthermore a question exists as to who has the powers of control and decision making? Can the PMO accommodate other functions other than the supporting role? However, this description is helpful in this research as it attempts to encapsulate various levels of PMOs that are fit for a particular purpose in different organisations, according to the maturity level of each an organisation. Figure 2.1 shows different levels of the PMO in line with the organisational project maturity level.

Strategic alignment				
Business maturity				**Level 5** Strategic PMO
Process support			**Level 4** Advanced PMO	Manage continuous improvement and cross department collaboration to achieve strategic business goals.
Process control		**Level 3** Standard PMO	Apply an integrated and comprehensive project management capability to achieve business objectives.	• Multiple programmes • Vice president or Director of project management
Project oversight	**Level 2** Basic PMO	Establish capability and infrastructure to support and govern a cohesive project environment.	• Multiple projects • Multiple PMs • Programme Manager • PMO Director • Dedicated PMO technical & support staff.	• Dedicated PMO technical and support staff • Enterprise wide support staff.
Level 1 Project office Achieve project deliverables and objectives for cost, schedule, and resource utilisation. • one or more projects • One project manager	Provide a standard and repeatable PM methodology for use across all projects. • Multiple projects • Multiple PMs • Programme manager	• Multiple projects • Multiple PMs • Programme managers • director		

Figure 2-1: The different levels of PMO continuum
Source: Hill (2004)

It is crucial to point out at this stage that Crawford (2001) has only defined levels of PMOs in accordance with their organisational structures and not their organisational maturity as indicated in Figure 2.1. This is also somewhat in contrast to Desta, Root & Diederichs (2006)'s five level model

definition. Crawford (2001) merely defines types of PMOs depending on the organisational level they are linked to, and below is the brief description of each level.

     i) Level 1 – Project Control Office or Project Office. This type of PMO handles the management of large and complex individual projects, with a focus on control and the monitoring of a schedule, budget and other more administrative aspects.

     ii) Level 2 – Unit project office for an example, an IT project office. This type of PMO can also be used when managing individual projects, but the overall objective is to integrate all projects in a unit into one or more portfolios of projects.

     iii) Level 3 – Strategic project management office, for an example, a corporate project office. Level three is located at corporate level, enabling senior management to take part in the prioritisation of projects, to support the goals of the organisation.

Rad & Levin (2002) also suggested three suitable levels:

i) PMO for individual projects or a program of related projects;

ii) PMO at the divisional level; and

iii) PMO at the corporate level.

Both Rad & Levin (2002) and Crawford (2001) present PMOs in terms of organisational structure as shown above and they have left out the aspect of the maturity of an organisation. This is an incomplete analogy, as the PMOs cannot be fully defined without determining the maturity of the organisation they are operating within. Each PMO should be established strategically in line with the organisation's maturity level. Just as Kendall & Rollins (2003) put it, a PMO is a centre of intelligence and coordination which allows a link between strategic business objectives and the related practical results, through an organisational portfolio, programme and project management.

It is important to highlight that, this aspect of project management maturity level is also inadequately highlighted by the three BoKs (i.e. PMBok, APMBoK and PRINCE2 through its P3O model) when defining the PMO. This is an important aspect of the heterogeneity that must be exposed in the definition just as defined by Desta, Root & Diederichs (2006). Moreover, the definitions don't indicate which organisational arrangement or activity patterns affect which type of performance criterion (Unger, Gemunden & Aubry, 2012). So the measure of how the PMO impacts the performance of the organisation is not apparent in any of the stipulated definitions so far in the researcher's opinion. What is apparent though is that (PMI 2004) and other BoKs focused on the structure and centralisation and the control of the project itself when defining the PMO. In the context

of a South African municipality, the maturity levels seem not to have been taken into considerations when establishing these PMOs. It is however important to note that the PMOs in South African municipalities have multi-project and multi-programme oriented functions. So it is possible that the above distinctions of PMOs based on levels are just an unnecessary exercise in semantics. However, there could be merit for the attention given to these distinctions when exploring the possibility of an efficient model, in the event that the current model has been found to be inefficient or inadequate.

It is therefore important to note that, Hill (2004) and Desta, Root & Diederichs (2006) adopted a definition of PMOs which is in line with a five level model and follows the same evolutionary continuum that has been conceptualised for the organisational project management maturity models called Organizational Project Management Maturity Model or *OPM3®* and Project Management Maturity Model (PMMM), which were developed by the Project Management Institute (2004) and Kerzner (2001) respectively. In this way, the Desta, Root & Diederichs (2006) description is not just an expanded version of Rad & Levin (2002) and Crawford (2001) above, but in fact a clear distinction that is based on organisational maturity and organisational structure. Fitting the five levels of PMOs into the five level maturity models such as OPM3 and PMMM shows the appropriateness of defining the PMOs in line with the maturity of the organisation.

At all levels, there is no prescribed method for establishing a PMO. The approach mainly depends on factors such as the size and the structure of the organisation and the purpose of the office (Anderson, Hendrickson & Aarseth, 2007). The following three key factors were fundamental towards model building, namely: *positioning*, *action* and *the performance* of the PMO. *Positioning* refers to structural organisation of people and units in terms of formal status, situation and authority. The closer something is to the top, the higher its level of autonomy, authority and responsibility. According to Bolles (2002), establishing a PMO in most organisation is very difficult to do, because managers are afraid of losing their authority and control over the resources that are assigned to them and so, positioning the project management function at the highest level within the organisation provides the measure of autonomy necessary to extend its authority across the organisation, while substantiating the value and importance the function has in the eyes of the executive management. So the model should not only focus on the positioning and operational aspect of the PMOs but also on the intricacies of establishing it, as this aspect has been hinted to be problematic, with not much focus placed on this aspect. *Action* refers to the way in which activities are accomplished (Aubry, Hobbs & Thuillier, 2007; Bolles, 2002) and *performance* in this refers to both PMO performance and the organisational

performance as a whole and it is defined as a subjective construct anchored in the values and preferences of the stakeholders (Aubrey & Hobbs, 2011).

Besides all these definitions, Pellegrinelli & Garagna (2009) noted that PMOs are the organisations' response to their needs and environments and therefore each has a unique structural arrangement designed to fulfil a unique or specific purpose. It means that PMOs can be highly divergent in their roles and functions across the organisations. Aubry, Hobbs & Thuillier (2007) point out that nearly 75 unique functions have been identified, some traditional and some innovative. The organisational reality surrounding PMOs is a complex and varied one and organisations establish a great variety of PMOs to deal with their realities (Unger, Gemunden & Aubry, 2012).

At least one thing is common and less confusing in all these definitions, that such a unit should be established to improve project management effectiveness at all levels by enabling an acquisition of knowledge from earlier failures and successes (Dai & Wells, 2004).

In the case of PMOs in South African Municipalities, the aspect of *centralisation* as articulated by the PMI (2004) is somewhat difficult to assess. This is because in terms of the municipal guideline document, the PMO is managed by the project manager who reports to the technical director of the municipality. This in effect renders the unit ineffectual and without the necessary powers for the centralised management of projects (Ministry of Local Government, 2007). What this means is that the function of the PMO manager consists of merely coordinating projects for the municipality and yet it was made clear in chapter two that PMOs in municipalities are mandated to implement projects, which is their core business. With regards to the PMOs that are intended to implement projects, it is expected as a minimum requirement that these PMOs are accountable for excellence in project implementation or execution and as indicated earlier, these kinds of PMOs should enable senior management to make business decisions and concentrate on exception management for the project.

Furthermore, it appears that the aspect of centralisation of project management in a PMO within the municipal structure has a potential of raising a typology of organisational tensions and political tension in particular (Hobbs, Aubry & Thuillier, 2008). When mandating these municipal PMOs, the power to manage a project seems to be the most critical part that has been left out. Accountability, power and control still rest with the technical director (Hobbs, Aubry & Thuillier, 2008; Ministry of Local Government, 2007).

As the above definitions do not singularly provide an appropriate dimension for a PMO as envisaged in this study. An opportunity exists to propose a definition or dimension of an effective PMO based on what has been explored above. This is because none of the definitions have actually come up with an all-encompassing or a global definition. We have seen what can be classified as the two category definition, namely; definitions based on the structural approach and the others based on the organisational maturity approach. However these two approaches are not mutually exclusive and the efficacy of the PMO can actually be drawn from the combination of the school of thoughts. However there also exists a need to clarify the extent of authority and the role of such a PMO with regards to their impact on the success or failure of projects will still be crucial.

This study will therefore adopt the following proposition:

'A *PMO is an organisational body with a series of levels dependent on the project management maturity level of the organisation within which it exists, and which can either be centralised or decentralised depending on the responsibilities assigned to it and the nature of the organisation, with the aim of improving project performance, through coordinated project management best practices'*. This definition can be explored in three parts. First, a PMO is an organisational body with a series of levels dependent on the project management maturity level of the organisation within which it exists. This part of the definition puts emphasis on the notion that the PMO should be created with organisational maturity in mind, as the different maturity level may dictate a particular PMO suitable for that organisation (Hill, 2004; Desta, Root & Diederichs, 2006).

Second, PMOs can either be centralised or decentralised depending on the assigned responsibilities and the nature of the organisation. A PMO is defined as centralised when the reporting line of command of the project managers rests within the unit and it is responsible for project implementation, procedures, systems and tools (Project Management Institute, 2004). A Decentralised PMO is defined as a business unit that oversees the project management methodology, training, and other miscellaneous responsibilities but, project managers do not report to this unit (Curlee, 2008). The project managers in a decentralised PMO would normally report to the functional or solution chain of command (Curlee, 2008; Project Management Institute, 2004). It is imperative to highlight this element of centralisation or decentralisation in the definition to bring an understanding of the parameters of the PMO. The term "responsibilities" relates to the scope of control, mandate and the extent of the PMOs autonomy. The aspect concerning the nature of the organisation comes into the spotlight when the purpose is exposed. If the PMO is intended to play a supporting role and provide services taking on the function of a knowledge bank. Where lessons learned from previous

projects are archived allowing for a decentralised PMO which will handle the projects appropriately. With this explanation in mind, there are possibilities for creating two differently structured PMOs (centralised and decentralised) in one organisation. With the decentralised PMO providing a support function to the centralised PMO which will be implementing the projects, and this could enhance the efficiencies of the centralised PMO. This is because trying to get a single entity to both the duties of a centralised and decentralised PMO can be cumbersome.

Third, the PMO should improve the performance of the organisation through coordinated project management best practices. Project management effectiveness can be achieved through the establishment of a PMO, particularly in order to enable acquisition of knowledge from earlier failures and successes and thereby provide a range of support and facilitative services, not only for projects but also for various management levels and support units (Dai & Wells, 2004)

2.2.3. The purpose and functions of PMOs

The general purpose of a PMO is to ensure the consistency and standardisation of the approach across projects, and in support of this effort, the office establishes project implementation methodologies, reporting, tools, techniques, templates, forms and procedures, define and implement project structures, implements project management systems and tools, and institute project management training (Martin, Pearson & Furumo, 2007). This means the PMO provides guidance in respect of suitable, standardised and validated tools, techniques and software, thereby reducing the problems that manifest due to uncertainties (Do Valle, E Silva & Soares, 2008).

According to the Project Management Institute (2004) PMOs are expected to perform the following key functions:
i) Shared and coordinated resources across all project administered by the PMO
ii) Identification and development of project management methodology and best practices
iii) Clearinghouse and management of project policies, procedures and other shared documentation
iv) Centralised configuration management for all projects administered by the PMO
v) Centralised repository and management for both shared and unique risks for all projects
vi) Central office for the operation and management of project tools, such as enterprise-wide project management software
vii) Central coordination of communication management for all projects
viii) A mentoring platform for project managers
ix) Central monitoring of all PMO project timelines and budgets, usually at the enterprise level

x) Coordination of overall project quality standards between the project manager, the internal and the external quality personnel and/or standards organisations.

APM (2006) states that, as a minimum, the PMO should provide:

i) Administrative support and assistance to project managers
ii) Collection, analysis and reporting of project information
iii) Assurance of project management processes.

APM (2006) further indicates that a PMO can fulfil a number of additional roles such as:

i) PMO can be responsible for excellence in project implementation or execution. This responsibility frees up the sponsors and senior management to make business decisions and concentrate on exception management for the project.

ii) PMO can be responsible for a strategic role. It is responsible for the execution of corporate strategy through projects and programme implementation. This office can act as a developer and repository of the standards, processes and methods that improve individual project performance.

So, APM (2006) advocates the idea of different types of PMOs for different purposes and therefore each PMO, depending on its mandate, may be defined differently. Just like APM (2006), the P3O Model (OGC, 2008) also advocates the approach of different functions to suit different types of PMOs. For an example, a portfolio office will provide the decision support engine behind successful portfolio management and it will be responsible for advising senior management on the composition of the portfolio, its progress in respect of plans and any problems with conflicting priorities (including priorities against business as usual delivery), in addition to any risks and issues (OGC, 2008). Other offices such as the Centre of Excellence (CoE), Programme and Project Offices will also have different functions (OGC, 2008). The CoE for example will be primarily responsible for standards, consistency of methods and processes, knowledge management, assurance and training across the full portfolio of change. This however, may be a team or function within the corporate portfolio office or may be set up as a separate office (OGC, 2008).

PMOs are also a way of professionalising project management practices within the organisation. They have an active role to play within an organisation relative to the internal focus, by developing and disseminating a project management methodology, the fostering of internal communication, including the presentation of results to upper management and the development of competencies (Aubry & Hobbs, 2011). On external focus, PMOs are also connected to the external world by means

of consulting firms and project management associations as in most cases, it is the responsibility of the PMO to procure (through the help of the supply chain unit within the organisation) and manage the external consulting services and also to make sure that the organisation and its employees are affiliated with the relevant project management associations. So the PMO is an entity in which there exists a permanent arbitrage between internal and external focuses.

A fully developed PMO should have the facility to provide services and organisational focus both in the core and the supporting areas of project management (Parviz &Rad, 2001). The PMO functions can be divided into a team-focused and enterprise oriented functions. The team-focused functions include consulting, mentoring, augmenting and the enterprise oriented functions include practising, archiving, promoting and training (Parviz, Rad & Levin, 2007). According to Parviz, Rad & Levin (2007), a highly mature organisation will have a full complement of the enterprise oriented functions and a few of the team focused functions, whereas a relatively immature organisation will have a forceful suite of the team-focused functions and a few of the enterprise- oriented functions.

As put forward by Hurt & Thomas (2009), the purpose of the PMO seems to be shifting over the course of its lifetime. Table 2.1 lists the benefits of PMOs in the 1990s and 2000s and the paradigm shift from 2001 onwards.

Table 2-1: Benefits of Project Management Office from 1990 - 2000

1990 - 2000
i) Accomplish more work in less time with fewer resources and without sacrifice in quality
ii) An increase in profitability
iii) Better control of scope changes
iv) More efficient and effective operations
v) Better customer relations
vi) Better risk identification and problem solving
vii) An increase in quality
viii) A reduction in power struggle
ix) Better company decision making
x) An increase in business and becoming more competitive

Source: Hurt & Thomas (2009)

Table 2-2: Benefits of Project Management Office from 2001 - 2009

2001 - 2009
i) Standardisation of operations
ii) Company rather than silo decision making
iii) Better capacity planning
iv) Quicker access to higher-quality information
v) Elimination or reduction of company silos
vi)
vii) Less need for restructuring
viii) Fewer meetings that rob executives of valuable time
ix) More realistic prioritisation of work
x) Development of future general managers

Source: Hurt & Thomas (2009)

While Table 2.1 and Table 2.2 indicate a significant shift in the benefit of PMOs in organisations, there seems to be a consistent benefit of having a PMO, which is to provide support to top management so that they can implement corporate governance procedures more effectively. This enables them (top management) to count on the PMO for support, planning, control; data collection, analysis, documentation and reporting for each project; but also allows for an organisational structure that is aligned with cross-functional implementation (Van der Waldt, 2001; Do Valle, E Silva & Soares, 2008).

On the contrary, research has also shown that there is little empirical evidence that clearly conceptualises the benefits of a PMO in organisations (Martins & Martins, 2012; Aubry, Hobbs & Thuillier, 2007). Although researchers affirm that the need for PMOs arises when an organisation is taking on a large number of projects that are very complex in nature, and it has emerged that PMOs can facilitate centralised project management (Martins and Martins, 2012). Aubry, Hobbs & Thuillier (2007) sum it up by suggesting that, a PMO is a translation centre where information concerning the project originates from different sources and is then integrated into intermediate deliverables to be disseminated at different levels within the organisation.

2.3. Best practice for PMO methodologies

Chapter one provides an overview of project management best practices in organisations across the globe and indicates that these best practices have been documented in many methodologies or bodies of knowledge (BoKs). The first formalised methodology was developed in 1987 by the Project Management Institute (PMI), with its Project Management Body of Knowledge (PMBoK).

The methodology has evolved over time into a comprehensive body of generally accepted best practices applicable to date. Another methodology originating from the UK is, the Projects In Controlled Environments (PRINCE2) methodology, which evolved from the first edition of PRINCE

that addressed a standard for IT project management in the UK. PRINCE2 is a generic project management method, which has an equally comprehensive set of processes and standards focusing on end-to-end project delivery. There is also the Association for the Project Management Body of Knowledge (APMBoK), which was developed by the association of project managers in the United Kingdom (UK) as a less prescriptive set of standards. The APMBoK provides a foundation for the successful delivery of projects, programmes and portfolios across all sectors and industries (APM, 2006). The other commonly used standard is the Control Objectives for Information and Related Technology (COBIT), from the Information Systems Audit and Control Association (ISACA) based in the USA. (Thomas & Tilke, 2007). Other standards, to mention just a few more include the International Project Management Association Competence Baseline (ICB), from the International Project Management Association (IPMA), which was developed in 1999 and whose primary purpose is to provide basic recommendations for its members, to facilitate the development of their own national competence baselines; Project and Programme Management for Enterprise Innovations (P2M) from Japan's Engineering Advancement Association (ENAA) which was developed in 2001 as the result of Japan's enterprise needs to produce more innovative approaches for the development of their businesses. The Australian National Competency Standards for Project Management (ANCSPM) from the Australian Institute for Project Management (AIPM) was also formed in 1977 (though not formalised at that time) with an emphasis placed on performance-oriented recognition of competence in the workplace (Gvozdenovic, *et al.*, 2008).

Surely there are many bodies of knowledge (BoKs) or project management guidelines for best practices or project management methodologies across the globe that are officially recognised. The above discussion reflects the wealth of the project management subject with its significant body of knowledge. Table 2.3 demonstrates some of the process groups that belong to the Bodies of Knowledge. This is because it is beyond the scope of this research to expand on each BoK. Table 2.3 will only focus on PMBoK, PRINCE2, APMBoK and COBIT. While these four where chosen randomly for comparative purposes, elements of the PMBOK and PRINCE2 were traced in the guideline from the Ministry of Local Government (2007). Moreover, both the PMBOK and PRINCE2 are more relevant for the construction environment and are project intensive in comparison to the others. Most BoKs are designed mainly for governance and control of information technology (IT), providing a process oriented structure (Thomas & Tilke, 2007). The Table 2.3 shows project management process groups as defined by each methodology or Body of Knowledge (BoK).

Table 2-3: Different project management process groups

PMBok guide process groups	PRINCE 2 process groups	APM Bok process groups	COBIT process groups
Initiating: scoping, Project charter	**Starting up**: feasibility studies, Business case	**Concept:** the need, opportunity or problem is confirmed, feasibility studies, The business case.	**Planning and Organisation:** defining the processes organisation and relationships; managing the investment; communicating the direction; managing the human resources; and managing risk issues and projects.
Planning: resource planning, business plan, programming, project implementation plan, project quality plan, costing estimation & budgeting, procurement of services etc.	**Initiating**: develop high level plan and control approach.	**Definition:** preferred solution is further evaluated and optimised. coping, scheduling, Costing and quality defined. project management plan (PMP) is produced and the resources required during the Implementation phase will be identified.	**Acquisition and Implementation**: Identifying and acquiring, enabling operation and use; procuring resources; managing changes and accrediting the solutions
Executing: implementation, quality assurance, updates, change management etc.	**Planning**: project deliverables, resource planning, project quality planning, cost and estimation & budgeting, procurement of services etc.	**Implementation:** PMP is executed, monitored and controlled. In this phase the design is finalised and used to build the deliverables.	**Delivery and Support:** Defining and managing service levels, third-party services, and performance and capacity; ensuring continuous service and security; identifying and allocating costs; managing the service desk and incidents; managing problems, data, configurations, and the physical environment and operations.
Controlling and monitoring: monitor quality, cost and schedule, supervision and contractor monitoring etc.	**Controlling stage**: day-to-day management of the stages by the project manager	**Handover and closeout:** Closeout is the process of finalising all project matters, carrying out final project reviews, archiving project information and redeploying the project team.	**Monitoring and Evaluation:** Monitoring and evaluating performance and internal control; ensuring regulatory compliance; and providing IT governance.
Close-out: project delivery and hand over.	**Managing product delivery**: defines how project will be delivered **Managing Stage Boundaries:** Managing the transition to the next stage in a controlled manner **Closing out**: project delivery and handover **Directing**: project board proactively manages the project's response to the external environment		

Source: (OGC, 2009; PMI, 2004; APM 2006 & Thomas & Tilke, 2007)

The table provides an analysis of how each BoK defines the project management processes. It is possible to look at each phase of the project and determine which activities are appropriate for

adoption in isolation or as a combination from each BoK. This is useful for developing the proposed framework. This will also help to outline the appropriate process to establish a PMO as the process of establishing a PMO should be in line with a particular or adopted process group(s) relevant to the municipalities and their unique requirements.

The succeeding section will show that the successful implementation of a PMO squarely rests on the project management process groups. This assertion suggests that project management processes groups should provide the fundamental building blocks for establishing a successful PMO. When comparing Table 2.3 with Figure 1.5, it is clear that municipalities are more aligned to PRINCE2 process groups, with fairly significant alignment to PMBok and APMBok as well. In order to minimise culture shock, it is highly imperative that the framework that will be developed sustain the PRINCE2 allegiance. The researcher believes that if a completely different methodology is imposed without a broad understanding of the benefits, implementing an effective PMO model in order to ensure the efficient delivery of project might still prove to be irrelevant and resistible.

It must also be noted that, none of the BoKs listed above cover "Operation and Maintenance (O&M)" in their process groups, the municipalities' process however, does adopt 'O&M' as the last process group in their project management process. This approach is often observed mostly in public private partnership (PPP) type projects. This is a fundamental omission made by the four BoKs and unfortunately a project life cycle should take total cost of ownership (namely; from "Cradle to Grave" approach) into consideration. This is even more crucial in the context of the public sector or municipality, where the municipality is responsible for the operation and maintenance of its own infrastructure. One of the serious challenges faced by the municipalities is the deterioration of infrastructure due to lack of adequate maintenance and refurbishment. For example, Development Bank of Southern Africa (DBSA) (2012) indicated that at least 26% of (3.2 million) households within formal areas disturbingly have sanitation services which do not meet the standard, due to the deterioration of infrastructure caused by a lack of timely maintenance and effective operation of the infrastructure schemes. In addition due to the lack of life-cycle costing, there is no plan for renewal at the end of the economic life span of the infrastructure. As such when a road reaches its end of design life or becomes 'obsolete in terms of capacity', there are no plans and therefore no budget to construct another one. An effective PMO would be handy in planning for such eventualities.

2.4.Establishing and operationalising a PMO: A theoretical perspective

This section explores in detail the best practices for establishing and operationalising PMOs. These are generally in line with the major project management methodologies discussed in Chapter two. Particular reference has been made to the PMBoK and PRINCE2 as these methodologies have been referred to in the guideline for establishing PMOs in the municipalities by the Ministry of Local Government (2007). In addition, this is done to avoid further confusion in relation to the current project delivery system in the municipal environment.

2.4.1. Best practices for establishing PMO

This sub-section focuses on best practices for establishing a PMO. It particularly focuses on five aspects that should be considered when establishing a PMO, with the next aspect being project management knowledge areas, followed by the project life-cycle. The PMO vs organisational maturity level, the nature and structure of the PMO in an organisation and the benefit model for establishing the PMO are also discussed in detail.

2.4.1.1.Project management knowledge areas

When establishing a PMO, it is the best practice to consider the project management knowledge areas. This is to enable the unit to focus on these knowledge areas throughout the project's life cycle. PMI (2004) and (2013) lists ten knowledge areas as follows:

1) Project Integration Management: the processes required to ensure that the various elements of the project are properly coordinated.
2) Project Scope Management: the processes required to ensure that the project includes all the work required to complete the project successfully.
3) Project Time Management: the processes required to ensure the timely completion of the project.
4) Project Cost Management: the processes required to ensure the project is completed within the approved budget.
5) Project Quality Management: the processes required to ensure the project will satisfy the needs for which it was undertaken.
6) Project Human Resource Management: the processes required to make the most effective use of people involved with the project.
7) Project Communications Management: the processes required to ensure the appropriate generation, dissemination, storage, and ultimate disposition of project knowledge.

8) Project Risk Management: the processes concerned with identifying, analysing, and responding to project risk.

9) Project Procurement Management: the processes required to acquire the goods and services from outside the performing organisation.

10) Project Stakeholder Management: the process includes analysing stakeholder expectations and the impact these might have on the project, and engaging and communicating with stakeholders in decisions and the execution of tasks.

Each area represents a complete area of specialisation including jargon, tools, concepts and tasks. It is crucial therefore that the PMO is well equipped and enabled with the resources in each knowledge area in order to deliver projects successfully.

2.4.1.2.The project life-cycle

It is important to highlight that the project life cycle is not the same as the process groups. A life cycle shows how the project moves from start to finish in different phases. Within one phase you might go through all the process groups. The mission of the PMO is to provide continuous improvement to the project performance, through coordinated project management best practices; that is, establish consistently followed practices for the entire project life cycle, i.e. initiation, planning, execution, control and closure of projects. Johnson, Joyner & Martin (2002) assert that the successful implementation of a PMO squarely rests on the project management process. This assertion suggests that the project management processes themselves should provide the fundamental building blocks for establishing procedures and training. Simply put, Johnson, Joyner & Martin (2002) recommend that the starting point for implementing a PMO is: process first. The organisation must first get their house in order with regards to process management basics before a discussion of techniques for establishing an effective PMO ensues. For example a value-added chain diagram in Figure 2.2 can be used as a method for identifying the high-level processes for an organisation or process area. The process in the value-added chain can indicate the sequence of processes and can be arranged hierarchically, process-oriented, consisting of superiors and subordinates (Johnson, Joyner & Martin, 2002). However, it should be noted that Johnson, Joyner & Martin (2006) employ the traditional project management process groups as articulated by the PMI (2004). In the case of municipal PMOs where it has been shown that the project management process is biased towards the PRINCE2 project management process groups (see Figure 1.5 and Table 2.3), it will be prudent to modify Johnson, Joyner & Martin's (2006) value-added chain diagram as indicated in Figure 2.2. In order to align it with the PRINCE2 project management process group and such modification should also take into account the PPP arrangement that may be applicable to the municipalities. This is done in order in

increase adaptability and minimise culture shock. Figure 2.2 shows the modified version of Johnson, Joyner & Martin (2006)'s value-added chain diagram.
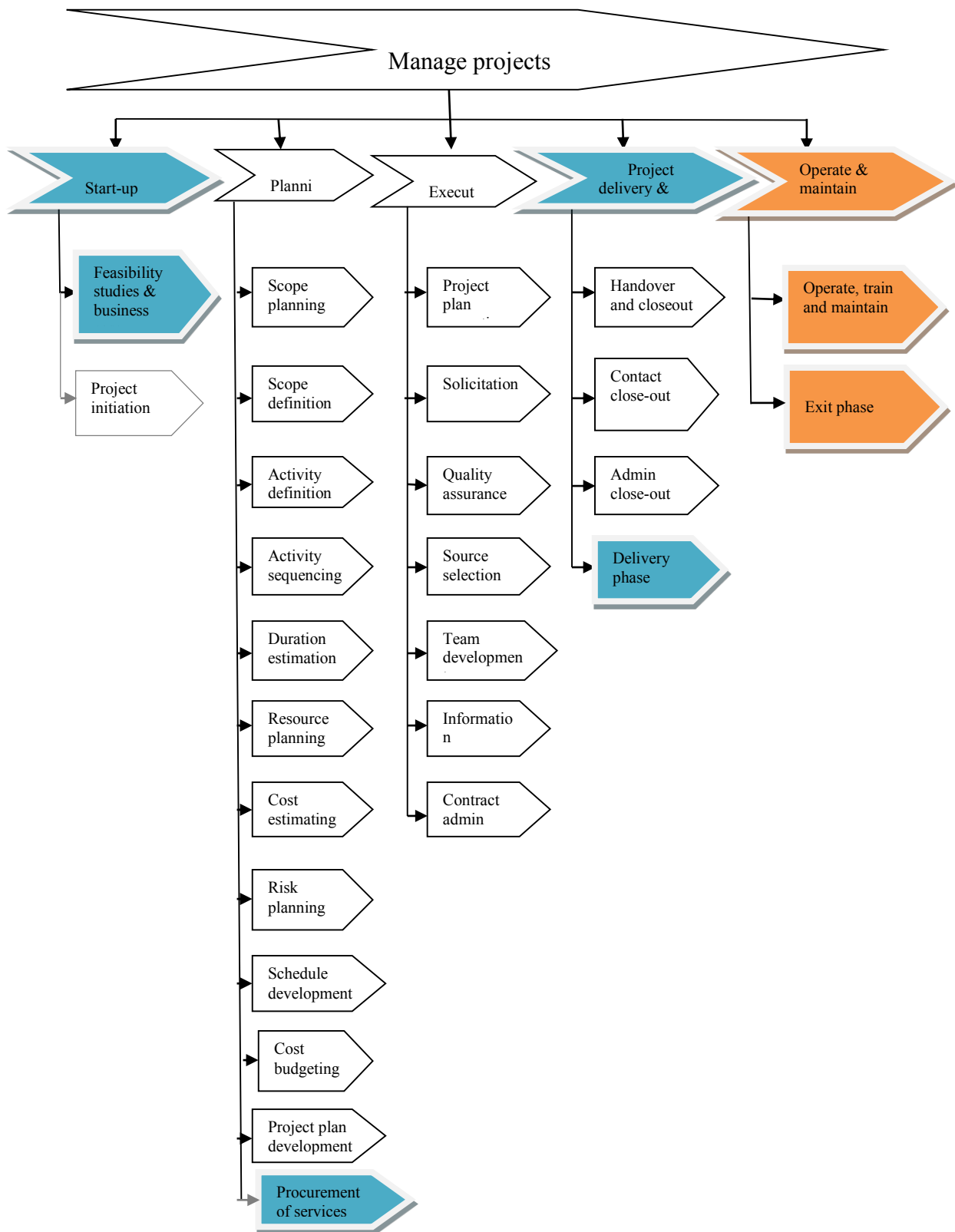
Figure 2-2: Modified Value - added chain diagram
Source: adapted from Johnson, Joyner & Martin (2002)

Figure 2.2 depicts a modified value-added chain diagram of the project management process groups that can be used during the development of the PMO in the municipal environment. The blue coloured boxes highlight that the processes have been modified to embed the PRINCE2 and to a certain extent the PPP process in together with the traditional process. The orange coloured boxes highlight the extended PPP process in the case where the municipality is envisaged to play a role in implementing PPP type projects. These processes, and other project management tools and techniques can increase the efficiency of the PMO implementation and ultimately reduce the cost of establishing and maintaining its processes. Other business processes that could be incorporated in the strategy towards establishing an effective PMO are not discussed in this study.

However, Anderson, Henriksen & Aarseth (2007) emphasise that there is no formula for establishing a PMO and they argue that the approach for establishing a PMO will depend on the size and structure of the organisation, and the purpose of the office. A three stage process has been suggested by Perry & Leatham (2001) as also cited in Anderson, Henriksen & Aarseth (2007), namely; first the project managers must be trained, second the PMO can be launched and lastly, deployment through active project consultation can be carried out. Bates (2003) suggests that, there should be three phases of PMO implementation:

i. Assessment: this is done through a set of interviews and document reviews to determine whether there is sufficient support from the executive level to implement the PMO and to determine the goals and objectives of the organisation and most importantly, to determine the level of project management maturity the organisation possesses.

ii. The planning phase: this phase constitutes two major elements, namely; the definition of the PMO organisation (for example, defining functions and responsibilities of the PMO, staffing the PMO, the methodologies, procedures and the systems required) and the project implementation plan for the last phase. The project implementation plan should cover the scope, definition, project schedule, budget and the definition of the control processes to be used for the project.

iii. Implementation phase: this is the final phase that should cover identification of the PMO staff, development of the PMOs internal operating procedure, establishment of the project implementation methodology, selection and implementation of project management software tools, establishment of the project management education and training programme and establishment of the project staff assessment and certification programme.

Anderson, Henriksen & Aarseth (2007) further stipulate the objectives that should be pursued when establishing a PMO as:

  i.   To ensure a more uniform project execution in large projects based on best practices.

  ii.   To improve cost and time overruns in projects by ensuring central competence unit project management in the organisation.

  iii. To develop qualified project managers and improve their competency skills.

  iv.   To assume responsibility for the overall project portfolio in order to enhance holistic practices with regard to the project selection and synergies among them.

The above objectives should be pursued to ensure the systematic handling of key project management tasks.

Lastly, when planning the establishment of a PMO and improving the capability to deliver projects and programmes successfully, developing a benefits model for the PMO can be a useful way to determine activities and prioritise effort. It is especially critical for ensuring that the value of the PMO is clear and then delivered on. The next section deliberates on the conceptual benefits model for PMOs.

2.4.1.3.PMO vs organisational maturity

One of the aspects that need to be considered when implementing a PMO is the maturity level of the organisation, the practices and the requirements with regards to PMOs at those levels (Anderson, Henriksen & Aarseth, 2007). Figure 2.1 depicts different levels of the PMO continuum in line with the project management maturity of the organisation. Desta, Root & Diederichs (2006) have defined a PMO as a series of levels where 'level-one PMO might support a single project, a level-two PMO would support several projects under the same programme, and a level-three PMO would support a division or departments of an organisation with all its projects. A level-four PMO would support the organisation within its projects and a level-five PMO would be placed strategically at an executive level and would support business strategy and resource allocation at an enterprise level. This definition of a PMO is in line with the organisational maturity models that follow the same evolutionary continuum. The models are the organisational project management maturity model (OPM3) and the project management maturity model (PMMM), which were developed by the project management institute (2004) and Kerzner (2001) respectively.

The organisational project management maturity can be described as the degree to which an organisation practices project management (Kerzner (2001). An OPM3 is a maturity model describing

the incremental capabilities that aggregate to best practices, and which are a prerequisite for effective organisational project management (Project Management Institute, 2003)

Figure 2.3 shows the OPM3 evolutionary continuum of organisational maturity progressing in several dimensions. One dimension involves viewing best practices in terms of their association with the progressive stages of process improvement from standardisation, to measurement, to control and, ultimately to continuous improvement; and another dimension involves the progression of best practices associated with each of the domains, first addressing project management, then program management and finally, portfolio management (Project Management Institute, 2003). The arrow is the third dimension indicating the progression of incremental capabilities. Each of these progressions is a continuum along which most organisations aspire to advance as they mature. It is important to indicate that the OPM3 was intentionally designed without an overall system of levels of maturity as this will allow flexibility in applying the model to the unique needs of an organisation.
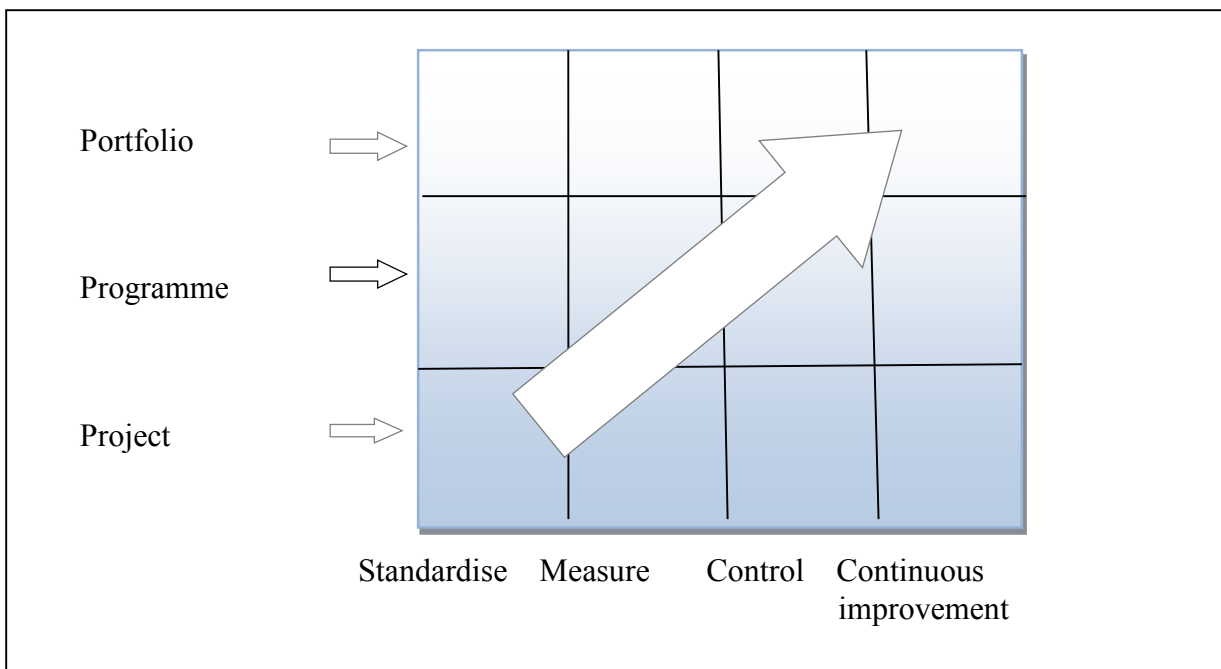
Figure 2-3: Organisational Project Management Maturity along the continuum
Source: Project Management Institute (2003)

Kerzner (2001) describes his project management maturity model (PMMM) as the foundation for achieving excellence in project management and it comprises of five levels, with each level representing the different degree of maturity in project management. Unlike the OPM3, the PMMM is deliberately designed to be aligned with the maturity levels of an organisation. Kerzner (2001) depicts the model as shown in Figure 2.4 with five levels described as follows:

i.   Level 1: this is a stage where an organisation recognises the importance of project management and the need for a good understanding of the basic knowledge on project management and the accompanying terminology.

ii.   Level 2: at this level, the organisation recognises that common processes need to be defined and developed such that success in respect of the project can be repeated on other projects.

iii.   Level 3: at this level, the organisation integrates all related processes with a singular methodology which ensures that the project management principles are at its core. The synergistic effect of combining corporate methodologies into a singular methodology also makes process control easier than with the use of multiple methodologies.

iv.   Level 4: this level recognises that process improvement is necessary to maintain a competitive edge and therefore benchmarking must be performed on a continuous basis.

v.   Level 5: continuous improvement is contacted through information gathered from benchmarking exercises to enhance singular methodology.
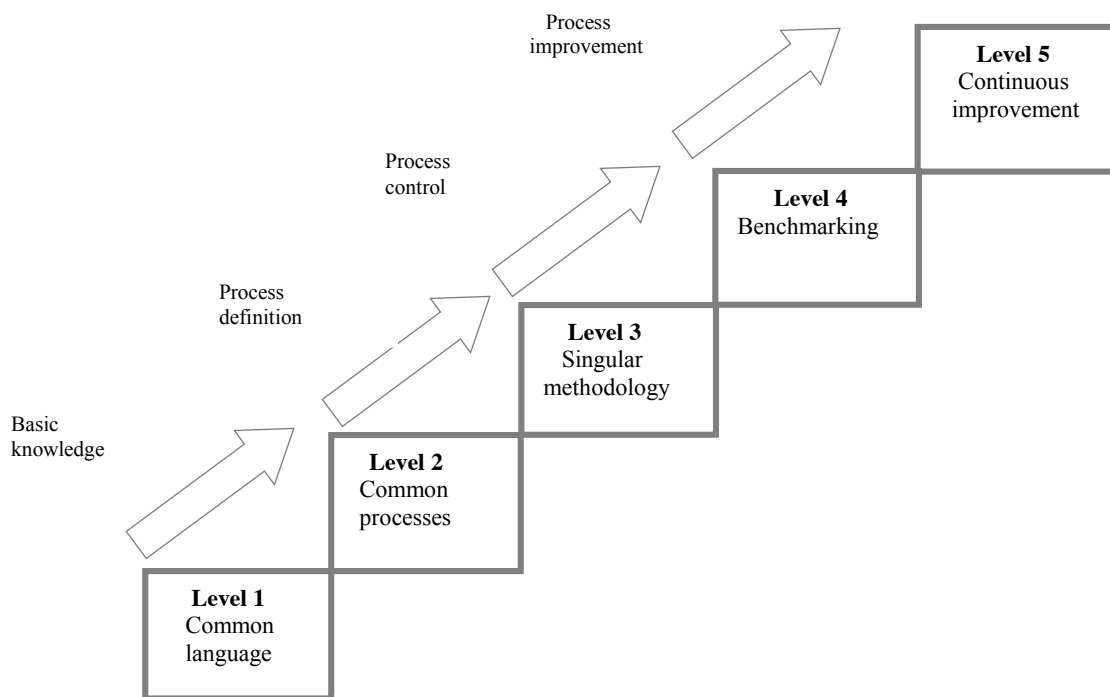
Figure 2-4: The five levels of project management maturity
Source: Kerzner (2001)

Kerzner (2001) emphasises that the levels of maturity do not necessarily have to be sequential as indicated in Figure 2.4. However, certain levels can and do overlap. The prize for advancing through these levels is to help organisations prioritise their improvement efforts (Kerzner, 2001).

Both the models presented in this section are in line with different levels of the PMO continuum that needs to be developed according to organisational project maturity (see Figure 2.1). As the PMO progresses through its phases, the maturity level increases both in the project office and in the organisation as a whole, and the focus of the PMO changes (Anderson, Henriksen & Aarseth, 2007). The argument presented here is that, an appropriate PMO suitable for a particular organisation can and should be established in line with the project management maturity level of such an organisation, within which the PMO is established. Before the organisation can establish the PMO, it must conduct a maturity assessment to ascertain the appropriateness of the PMO it intends to establish.

There are various other maturity models such as the portfolio, programme and project management model (P3M3) (Alexos, 2013), the PRINCE2 maturity model (P2MM) (Alexos, 2013) and the Capability Maturity Model (CMM) (Software Engineering Institute (SEI), 1993). These models are not materially different from the ones discussed above.

The P3M3 helps organisations address fundamental aspects of managing portfolios, programmes and projects. It was developed to improve the likelihood of obtaining quality results and successful outcomes, while reducing the likelihood of adverse impacts from risks (OGC 2008). The model consists of three sub-models that enable independent assessment. There are no interdependencies between the sub-models, so an organisation may be better at programme management than it is at project management, for example. The models are:

i) Portfolio Management (PfM3)
ii) Programme Management (PgM3)
iii) Project Management (PjM3)

Just like Kerzner's (2001) PMMM, each sub-model has five maturity levels which indicate how key process areas can be structured hierarchically to provide transition states, for an organisation wishing to set realistic and sensible goals for improvement (OGC, 2008). The five maturity levels facilitate organisational transitions from an immature state to the appropriate level of maturity making them capable organisations able to handle initiatives based on a standardised, defined process - in line with specific business needs as described below (OGC, 2008).

Level 1: Awareness of Process: The organisation usually recognises programmes and projects and creates an informal list of its investments in programmes and projects, there should be no formal tracking and reporting process at this level

Level 2: Repeatable Process: at this level, the organisation ensures that each programme is run with its own processes and procedures held to a minimum specified standard

Level 3: Defined Process: at this level, the organisations normally have their own centrally controlled programme, project processes and individual programmes and projects may be run flexibly within these processes to suit the particular programmes and/or project.

Level 4: Managed Process: the organisation obtains and retains specific management metrics on its programmes and projects as a means of predicting future performance. Furthermore, the organisations should assess their capacity to manage programmes and projects and prioritise them accordingly.

Level 5: Optimised Process: finally, when organisations reach this level, they should be able to run continuous process improvement for optimal performance.

The PRINCE2 maturity model (P2MM) is in fact derived from the P3M3 model described above (Alexos 2013). It is a standard which provides a framework with which organisations can assess their current adoption of the PRINCE2 project management method and then put in place improvement plans with measurable outcomes, based on industry best practice (Axelos, 2013). The same levels of assessment described above are followed in the P2MM.

The software engineering institute (SEI) (1993) introduced the capability maturity model (CMM) in the software environment which also, just like all the above models (in fact the P2MM and the P3M3 are both based on this model), it is based on five maturity levels that describe the key elements of an effective software process. It describes an evolutionary improvement path from an ad hoc, immature process to a mature, disciplined process.

As organisations establish and improve the software processes by which they develop and maintain their software work products, they also progress through the levels of maturity. Figure 2.5 shows the five maturity levels of the CMM, with each maturity level providing a layer in the foundation for continuous process improvement (SEI, 1993). Each key process area comprises a set of goals that, when satisfied, stabilise an important component of the software process (SEI, 1993). All the five levels are similar to those described under the P3M3 which was analysed above.
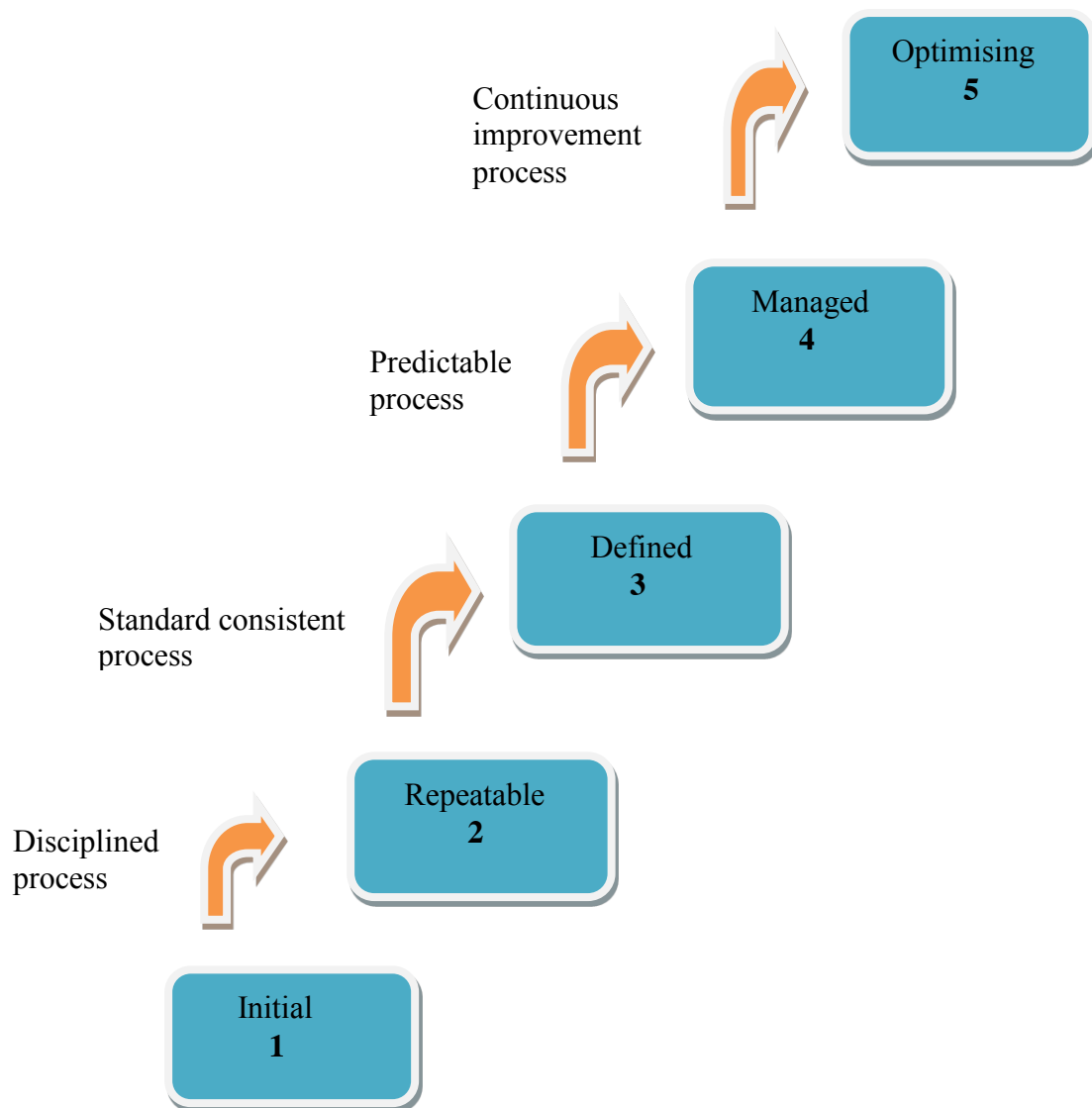
Figure 2-5: The five levels of Capability Maturity Model
Source: SEI (1993)

It is interesting to note that CMM is very similar to Kerzner (2001)'s maturity model and both are major models which are regarded highly in assessing the project management maturity in organisations. Just like Kerzner (2001), the CMM is also in line with different levels of PMO continuum which emphasise the description and development of PMO in accordance with organisational project maturity level (see Figure 2.1.).

2.4.1.4.Nature and structure of PMO in an organisation

One of the main purposes driving the nature of the PMO is that it should contribute to installing project management best practices in the organisation. To achieve this, such an office should have the necessary authority within the organisation (Anderson, Henriksen & Aarseth, 2007). One of the

definitions of a PMO as discussed above was that of a PMO being a centralised layer of control between senior management and the project management function. This definition introduced an aspect of authority that the PMO must possess at a certain level of the organisation, although it was not explicitly described. Hobbs & Aubry (2007) have found that different organisations assign a great variety of roles ranging from passive or supportive roles with little or no decision making authority, to considerable or very significant roles which carry authority and require the PMO to make decisions allocate resources, set priorities, or initiate, change or cancel projects. According to Anderson, Henriksen & Aarseth (2007), the authority of the PMO is defined through:

i) The respect the PMO enjoys in the organisation, is a result of the seniority of the office, the competence of the PMO and the efficient utilisation of resources. In other words an authoritative PMO should not be staffed with junior graduates, as this will likely affect the effectiveness of the office.

ii) The type of attitude the PMO displays. The role should be clearly defined and focus should be placed on what the PMO is intended for, in order to sustain the perceived benefit produced.

iii) The support enjoyed by the PMO from senior management. This can be sustained by the PMO itself taking the initiative of proving its worth, by obtaining results and documenting them. This can be achieved by undertaking a balanced performance measurement of the project portfolio.

iv) The official mandate given to the PMO and the processes it practices.

Aubry *et al*. (2010) conducted a study on identifying the forces driving PMO changes and found that the controlling nature of the PMO should increase significantly and the reporting of the PMO should be higher up in the hierarchy for an effective PMO to exist. This means the PMO should have sufficient decision making authority with more adequate funding for the PMO. For this to be possible, organisations need to formalise their approach to project management. Formalising project management requires that an organisation wide strategy for project management must be initiated and visibly supported by the top management (Brown, 2008).

Another dimension derived from Anderson, Henriksen & Aarseth (2007) highlights that; PMOs need not necessarily be physical offices, but can also be virtual units, consisting of people with a special interest and expertise in project management, promoting good practices on behalf of the entire organisation. However the practicality of this approach is very narrow since the important aspects that attribute to the effectiveness of the PMO, such as the location of the unit, in terms of the level as indicated in our definition becomes irrelevant.

Before establishing a PMO, it should be made clear what the PMO is intended to achieve or what mandate it will have. This will help define the right PMO for the intended purpose. It has already been established that the organisational reality surrounding PMOs is complex and varied and so organisations establish different PMOs to deal with their own realities.

Another element that cannot be overlooked when establishing a PMO is the structure of the organisation and of the PMO itself. Once a project has been approved in line with the Figure 1.5 programme processes, the PMO is responsible for overseeing the process to ensure that the project is delivered effectively (Ministry of Provincial and Local government, 2004). This means that the PMO must take responsibility for the overall management of the project through the project cycle. The project management responsibilities will depend upon who implements the project. The project is usually implemented by the PMO unit within the municipality, or it may be implemented by an external implementing agent where the municipality does not have the capacity or does not have the PMO, for example private sector firms, or non-governmental organisations, or other consultants and contractors (Ministry of Provincial and Local government, 2004). If an external implementing agent is contracted to implement the project, the PMO is responsible for all the work involved in the selecting and appointing the contractor, as well as managing the contract, while monitoring the implementation process, within the ambit of the municipal procurement policy and Municipal Finance Management Act (Ministry of Provincial and Local government, 2004).

The project management process would generally follow the programming category as indicated in Figure 2.6. Figure 1.5 highlights the MIG programme processes in line with traditional programme/project process that are aligned with both the PRINCE2 and PMBoK guidelines. Figure 2.6 shows the tools and techniques categorised per each of the project, programme and portfolio management elements (or domains) of portfolio management (OGC, 2009). The grey boxes inside the big box represent the project management elements that the unit at different levels are concerned with, indicated on the first red column. For an example, a unit at programme and portfolio level will be more concerned with both planning and control activities or elements, whilst a portfolio level unit will not be concerned with business cases for the individual projects.
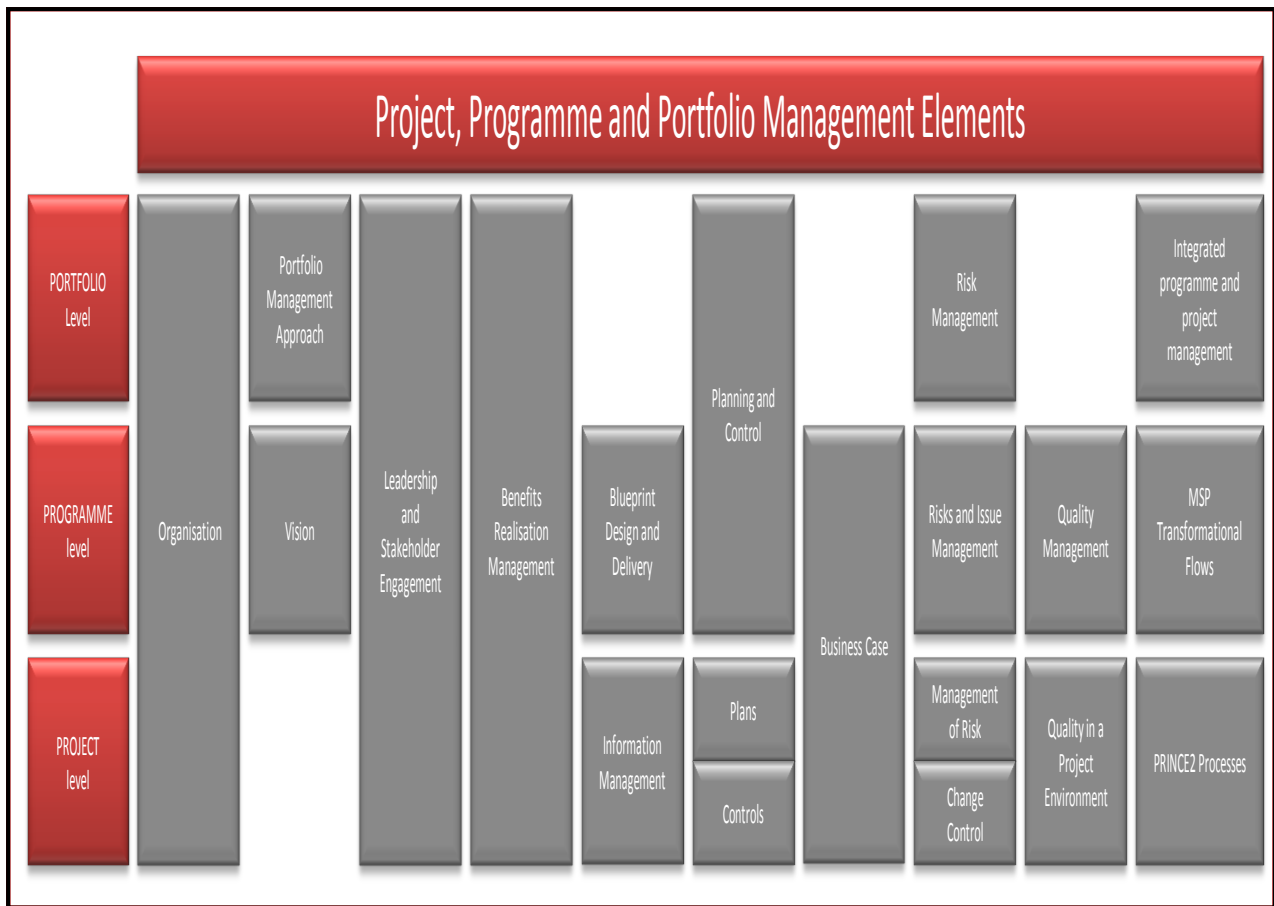
Figure 2-6: Project, Programme and Portfolio Management elements
Source: Ministry of Provincial and Local Government (2004)

Based on Figure 2.6 it is fair to assume at this stage that the municipalities operate at programme management level, however, some of the key elements in this category may not be adequately addressed. In their study of investigating the status of project management in South Africa, Barry & Uys (2011) have found that South African organisations in general still need to improve on the aspect of stakeholder relations, as the use of this tool or technique was found to be very low. Other techniques such as risk and issue management and quality management are virtually non-existent as these aspects do not feature anywhere in the municipality guideline documentations.

In a project oriented organisation, one will expect the establishment of a project based management structure, and the challenge that will remain will be to infuse a project or matrix organisational structure with the existing bureaucratic structure (van der Waldt, 2001). Figure 2.7 shows a project structure that is integrated into the hierarchical structure of an institution, where various directorates or units act as project team members for the duration of the project. Where there is more than one project as is the case in municipalities, the structure will replicate itself, there will be someone at the

level of project manager and there shall be a programme manager who will be overseeing the project managers.
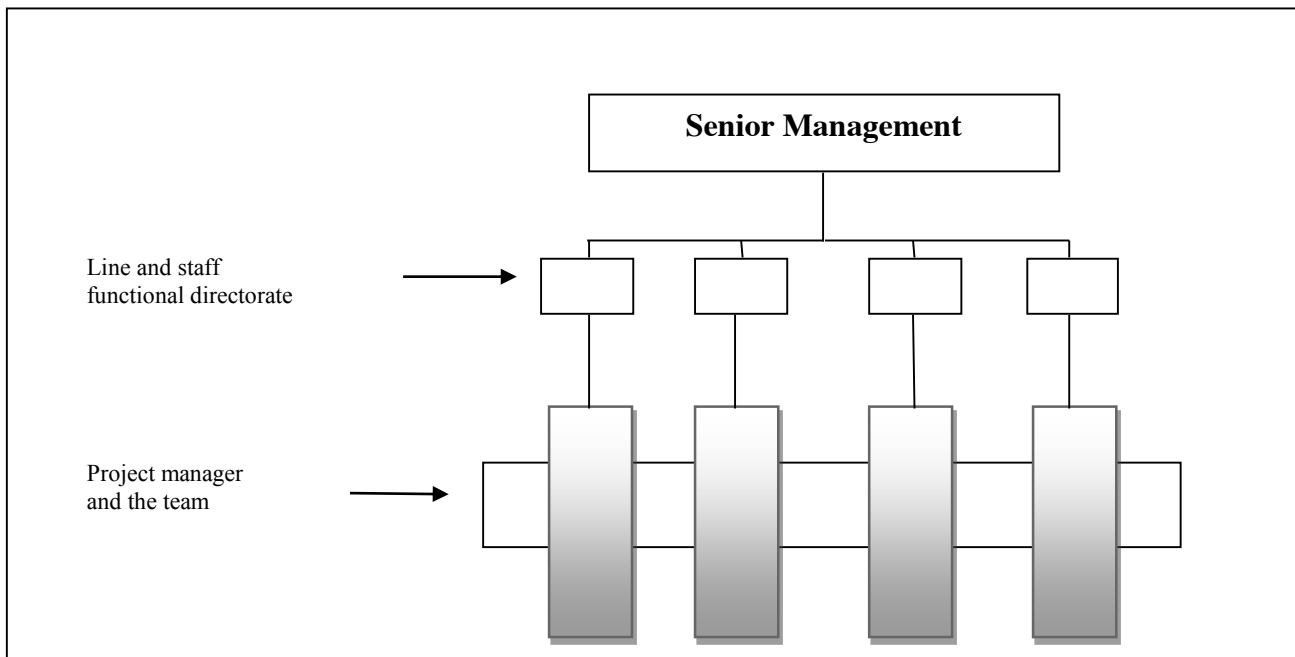
Figure 2-7: Project structure integrated into the hierarchical structure
Source: van der Waldt (2001)

There are some government departments such as the Gauteng Department of Education and the Gauteng Department of Welfare who are already utilising this matrix/project structure with a considerable degree of success (van der Waldt, 2001).

It has been indicated in chapter one how service delivery infrastructure developments are turned into projects and then programmes. In essence, PMOs in municipalities are managing programmes. The APM (2006) defines programme management as the coordinated management of related projects, which may include related business-as-usual activities that together achieve a beneficial change of a strategic nature for an organisation. What constitutes a programme will vary across industries and business sectors, but there are core programme management processes.

Even though a PMO could successfully take many forms in line with different organisational strategies, the (P3O) model provides the structure, governance, functions and services required for defining a balanced portfolio of change and ensuring the consistent delivery of programmes and projects across an organisation or department as depicted in Figure 2.8 (OCG, 2008). In Figure 2.8 the portfolio office is supported by permanent hubs and temporary programme/project offices (OGC, 2008). The OGC (2008) believes that in municipal environment or large government department the

model outlined in Figure 2.8 may be ideal. However in a small organisation the P3O model may simply be a single individual acting as a multi-tasking P3O officer and eventually, the model to be deployed in an organisation will depend on:

i) the vision, goals and the business needs of the organisation

ii) the portfolio, programme, project and risk management (P3RM) maturity of the organisation

iii) the size of the resource pool

iv) the numbers of programmes and projects being undertaken

v) the wider organisational, political and cultural environment

vi) the business divisions/departmental structure, and the geographical location of staff.
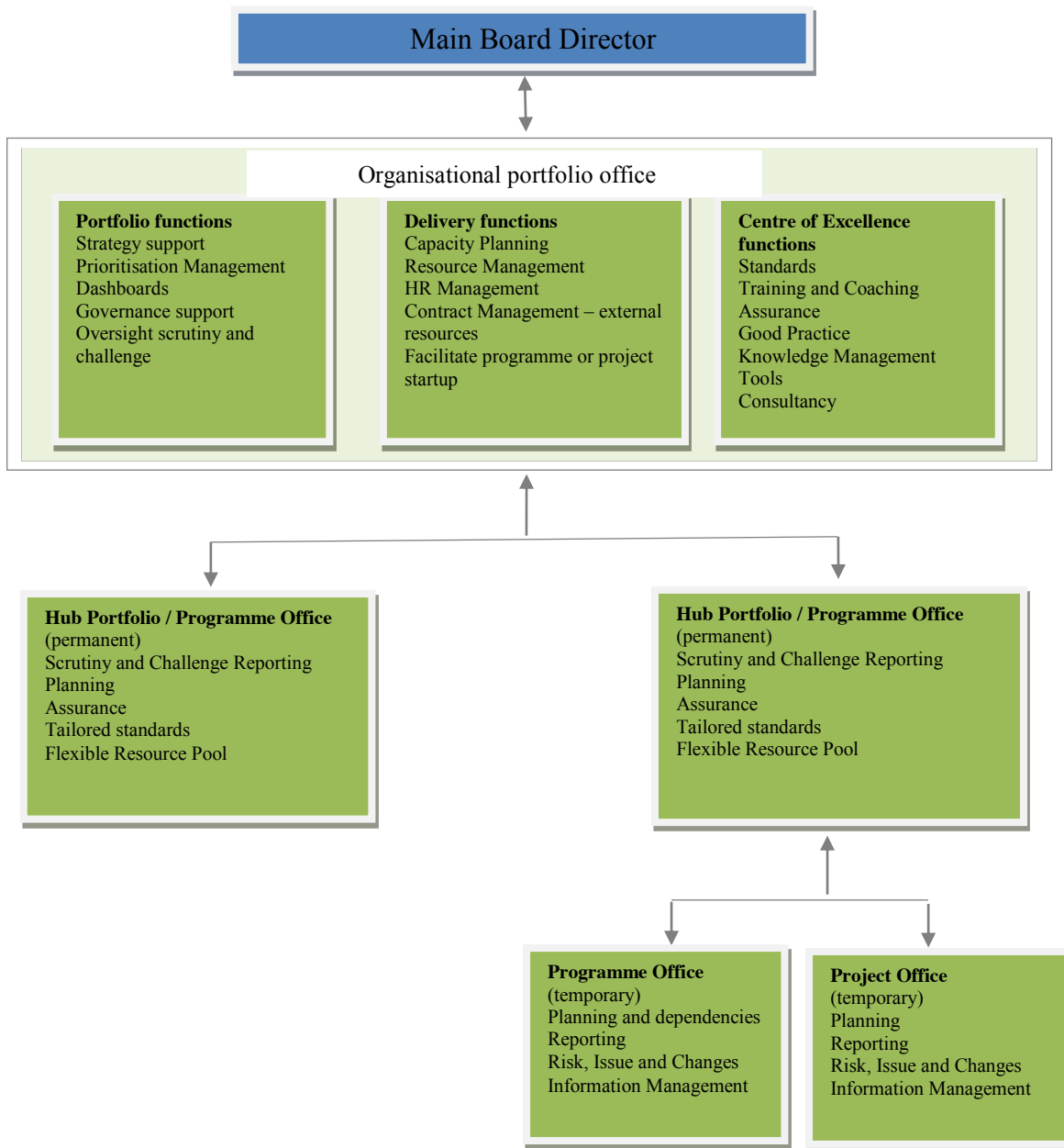
Figure 2-8: An example of P3O model
Source: OGC (2008)

In the case of the P3O model as depicted in Figure 2.8, the Portfolio Office will be responsible for advising senior management on the composition of the portfolio, its progress in respect of any plans as well as identifying and mitigating any conflicting priorities, risks and issues (OCG, 2008). Senior management may have to make hard choices about programmes, projects and resources in the light of changing priorities (OGC, 2008). It is also important that the portfolio office reports directly to one of the main directors on the board or it will have insufficient influence over investment decisions and consequently, if there is no buy-in or ongoing consistent support from senior management then the portfolio office will not be effective (OGC, 2008). Whereas a key role of a portfolio office is to ensure that the "right" things are delivered, there is also a requirement to ensure that change is delivered consistently and well, through standard processes and trained competent staff. Consequently a Centre of Excellence (CoE) within the P3O model, helps the organisation to "do programmes and projects right" by, providing standards, consistency of methods and processes, knowledge management, assurance and training across the full portfolio of change (OGC, 2008).

2.4.1.5. Proposed municipal PMO model and structure based on P3O model

With minor improvements to suit the municipal environment, this model may also work for municipalities (see Figure 2.9). In a municipal environment, programme management will be more suitable than applying complex portfolio programme management and one of the main directors on the board may be replaced by the municipal manager. The centre of excellence unit will be responsible for providing standards, consistency of methods and processes, knowledge management, assurance and training, it should be placed inside the PMO. The PMO itself will be led by PMO Manager or programme manager who will oversee project manager for various projects. The project offices, they may be temporary or permanent depending on the needs of the PMO. This proposal will be in line with elements of programme management (aligned to programme level) in Figure 2.6.

With reference to Figure 2.9 model, a single PMO provides programme functions, delivery functions and the centre of excellence functions enlisted in Figure 2.9. The whole unit will be headed by the PMO executive who reports to the municipal manager. Each of the three functions listed such as the programme function represent business units, headed by the programme manager who has various project managers underneath him/her. The project offices headed by the project managers might be temporary depending on the life of the project, but the PMO is a permanent strategic office operating at executive level. Figure 2.10 unpacks the typical structure under this model.
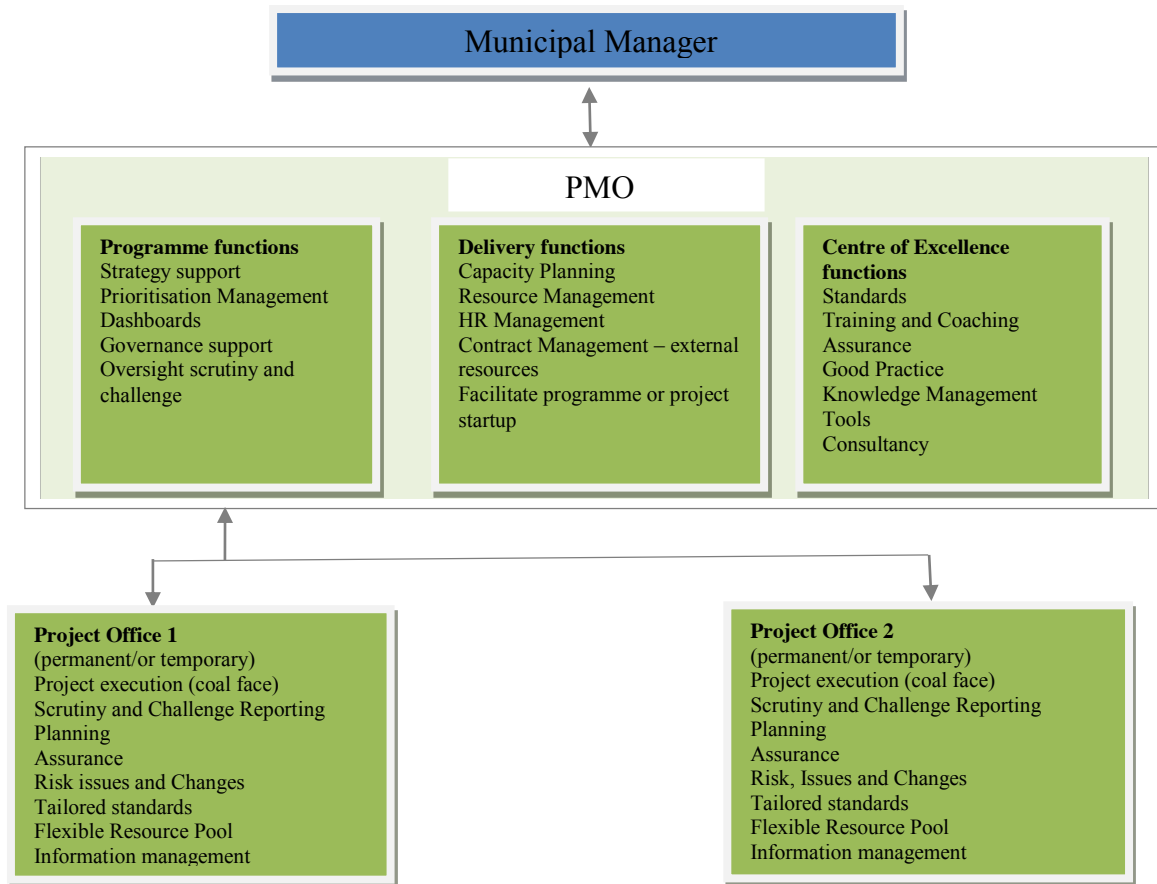
Figure 2-9: Proposed Municipal PMO model based on a P3O model

The structure shown in Figure 2.10 is an indication of how the PMO structure will look like in a P3O oriented environment. This example of the PMO structure will suit the model depicted in Figure 2.9. As this in line with the P3O Model, the structure should therefore have three major functions, namely; the project implementation function overseen by the programme manager, delivery functions some of which should be overseen by the engineering specialists and/or contracts manager. In addition the centre of excellence functions should be overseen by the project support manager. As such the structure should mainly consist of the programme manager with project managers (depending on the number and the size of the projects) operating under him/her. The project managers will be running the project offices. These project offices are temporary in nature and their lifespan depends on the life of the project itself and the offices will be supported by support staff from other divisions such as engineering, contracts and project support or the centre of excellence. They (the support staff) will be running overseeing the delivery functions, such as planning and contract management, and the centre of excellence functions.
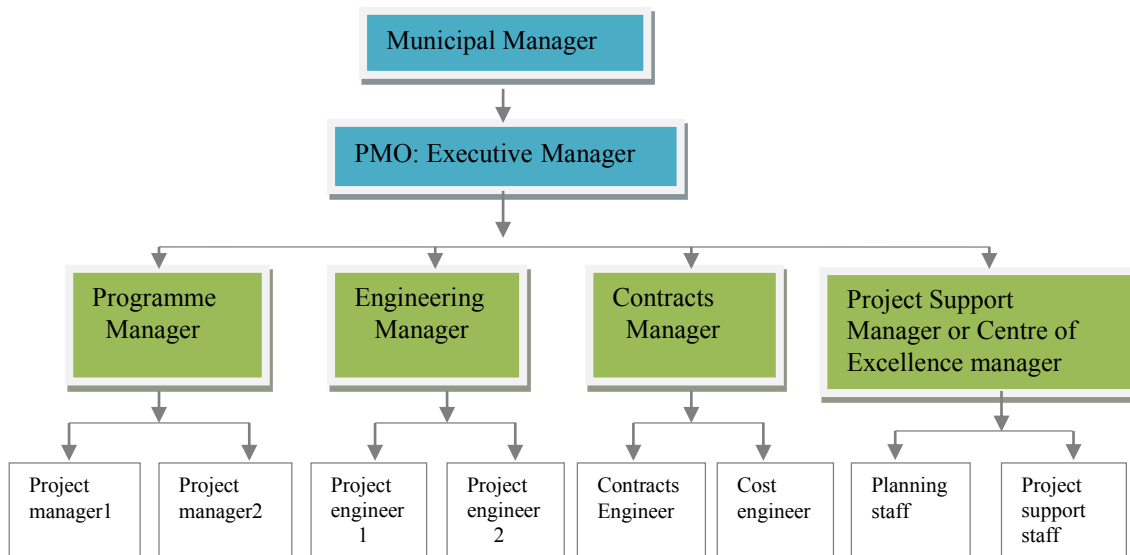
Figure 2-10: Proposed PMO structure based on a P3O model

Figure 2.10 also shows a possible semi-matrix hierarchical structure that may be suitable for municipalities employing the P3O model. It is noticeable that the structure is also based on the modified value added diagram shown in Figure 2.2. It is crafted in alignment with the common objectives of infrastructure development and service delivery in all the municipalities. It should be noted that the final structure of each municipality may be modified in line with the vision, strategic objectives, and the size of the organisation, or according to the number of projects simultaneously being implemented by the municipality. The structure is designed to retrofit the bureaucratic nature of the municipalities.

2.4.1.6.The benefit model for establishing a PMO

The benefit model shown in Figure 2.11 provides an example of a programme office in line with the PMO concept envisaged for municipalities. The functions are aligned to the outcomes and benefits as shown in Figure 2.11, which may be tailored to suit different municipalities (OGC, 2009). The boxes in the first column are showing functions, which are followed by the project management knowledge areas. The second column shows the immediate benefits that may be realised when the functions in the knowledge area column are executed successfully. The third and fourth columns show the final outcomes of emphasising the key functions reflected in the first column. The last green box indicates the ultimate realised objectives. The functions are also designed in line with the possible municipal PMO model in Figure 2.9.
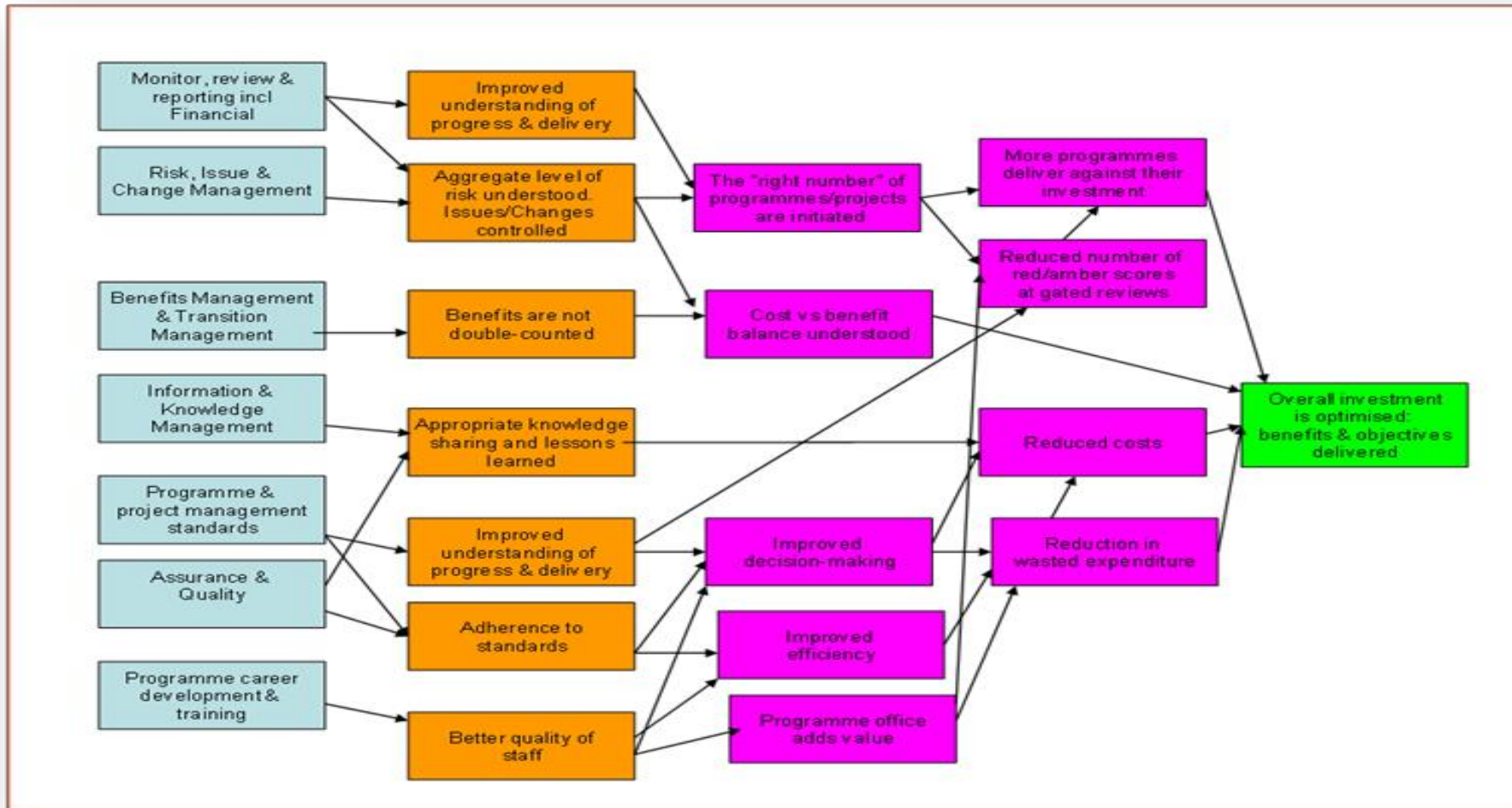
Figure 2-11: The benefit model
Source: OGC (2009)

2.4.2. Best practice for operationalising PMO

This subsection discusses five key aspects for operating PMOs. These aspects are in line with the benefits model functions as shown in Figure 2.11. The next aspect up for discussion is the alignment of the PMOs with the project management methodology, followed by the operational dimensions of PMOs, training and staffing requirements, competency requirements and continuous improvements.

2.4.2.1.*Aligning the unit with the project management methodology*

It was already indicated in the introduction of this section that it is important not to deviate from standard based regimens such as PMI and PRINCE2 to avoid further confusion in relation to the current project delivery system currently found in the municipal environment. However, the general assumption is that each organisation will adopt a process group suitable to its own organisational requirements, objectives and strategy.

Table 2.4 shows the production/process management process groups and knowledge areas mapping, adopted from PMBoK (PMI, 2013). The table demonstrates how the process groups and the knowledge areas overlap, interact and depend on each other. The knowledge areas are indicated in the first column of the table and the process groups are presented in the first row of the table. The two are then mapped together through matrix linkage on the table in the relevant boxes where those two axes cross. For example, at the junction of project integration management and the initiating process group you have the process to 'Develop the Project Charter'. In Some cells the tables are blank. That means that there are no processes associated with that particular stop along the project journey.

The PMO should operate in line with this mapping table for successful outcomes. It must be resourced and equipped in such a way that it will be able to deliver, in line with the process groups and the knowledge area on any project. This is the key point of departure for operationalising a PMO. For example, a stakeholder coordinator or manager or whosoever is responsible for stakeholder management, must start with the project at the initial stages of its execution in order for him to be able to identify stakeholders at the initial stage.

Table 2-4: Project Management Process Groups and Knowledge area mapping

Process group / Knowledge area	Initiating	Planning	Executing	Controlling	Closing
Project integration management	Develop project charter	Project plan development	Direct and manage projects work	Monitor and control project work Perform integrated change control	Close project
Project scope management		Plan scope management Define scope Create WBS		Validate and control scope	
Project time management		Plan & develop Schedule Define and sequence activities Estimate activity resources Estimate activity durations		Control schedule	
Project cost management		Plan and estimate cost Determine budget		Control cost	
Project quality management		Plan quality management	Perform quality assurance	Control quality	
Project human resource management		Plan human resource management	Manage project team		
Project communications management		Plan communication management	Manage communications	Control communications	
Project risk management		Plan risk management Identify risks and perform qualitative risk analysis Plan risk responses		Control risk	
Project procurement management		Plan procurement management	Conduct procurement	Control procurement	Close procurement
Project stakeholder management	Identify stakeholders	Plan stakeholder management	Manage stakeholder engagement	Control stakeholder engagement	

Source: PMI (2013)

2.4.2.2.Operational dimensions

In order for municipal PMOs to operate smoothly, the approach should be that of an Enterprise Project Management Office (EPMO). The EPMO is a centralised business function which operates at a strategic level with the enterprise executives and provides enterprise wide support on governance, project portfolio management best practices, mentoring, tools and standardised processes (Patel, Patel & Patel, 2012). It should however cover elements attributable to the project support office such as administrative support, project initiation, control, planning and execution, monitoring, and closing (Bolles & Hubbard, 2015). As for completeness it must also cover elements attributable to the Project Management Centre of Excellence (PMCoE) such as establishing, documenting and promulgating project business management standards, methodology, practices, tools, training, templates, education, and project management competency (Bolles & Hubbard, 2015). In other words, a more suitable PMO could be a hybrid PMO that covers the above elements. While the traditional PMOs are operating at the tactical and operational level, an EPMO operates at executive, strategic and operational level, reporting directly to the CEO of the company, so they can help the overall organisation achieve its strategic goals and in the process also help better support the project teams (Patel, Patel & Patel, 2012). This is also to ensure strategic alignment between business objectives and projects executed (Patel, Patel & Patel, 2012).

The PMO operations parameters can also be defined in terms of the PMO mandate or goal. This mandate therefore needs to be put into context with respect to scope and target maturity. The scope dimension can be defined by three levels as shown in Figure 2.5, namely: project, program and portfolio. Process of assessing the current maturity level of the organisation is critical in setting achievable goals and deciding upon the framework within which the PMO will be operating (See Section 2.4.1.3). Once the parameters have been defined, the PMOs core services can be drawn.

Figure 2.12 shows an example of various potential PMO services offerings ranging from business strategy alignment services, to basic project activities and coordination (Patel, Patel & Patel, 2012). Figure 2.12 illustrates an Enterprise PMO which is positioned at the executive level with a degree of influence at the strategic level. This PMO is still responsible for project activities such as scheduling, costing and quality in line with project management knowledge areas as shown in blue and in the process groups. As a result of its positioning, this model

EPMO will fully execute the strategic objectives of the organisation and will be able to align its mandate with the corporate or business strategy as whole.

Figure 2-12: Core services of a PMO
Source: Patel, Patel & Patel (2012)

Additionally, compliance with a set of rules and guidelines has been the genesis of the development and operation of the PMOs and PMOs are responsible for establishing best practices and policies that are to be adhered to, by the internal customers they serve (Iqbal, 2013). In order to operate smoothly, the internal and external customers of the PMO should not only subscribe but comply with the guidelines and policies.

Lastly, it is the responsibility of the PMO to forge relationships and understand how other business units operate, to better understand and manage each proposed project and help develop business cases for projects (Bolles & Hubbard, 2015).

2.4.2.3.Training and staffing requirements

The training and staffing requirements are clearly outlined in the Ministry of Local Government (2007)'s guideline document (see Section 1.3.3). However, a detailed assessment of the training and staffing requirements during the establishment process is a prerequisite before moving onto the operational phase. It is important to note that, organisational structure, positions and the staffing requirements cannot be filled without first establishing the organisational strategy and objectives and/or mandate.

2.4.2.4.Competency requirements

The mission of PMOs is to improve project management effectiveness, particularly by enabling the acquisition of knowledge from earlier failures and successes and by being a backbone for efficient facilitation of services not only for project but also for various management levels and support units (Julian, 2008). Therefore a competent PMO should cope with the following issues as described by Rozenes & Vitner (2009):

i. Develops, clarifies and manages the scope of the project, defines the contract deliverables and achieves targeted outcomes.

ii. Ensures project requirements are achieved in a timely fashion and within budget guidelines.

iii. Assembles the project team, identifies needed resources, assigns responsibilities and develops timeframes to facilitate successful completion of project activities and deliverables.

iv. Ensures compatibility and consistency with the established standards.

v. Performs cost benefit analysis for the initiated projects

vi. Performs risk assessment for the projects

Thus both Bates (2003) and Rozenes & Vitner (2009) argue that the key to a successful and effective PMO lies in the selection of the right PMO manager and have suggested that the selection criteria include the following considerations:

i. The management experience of the PMO manager should be commensurate with the level of the position to ensure the ability to interact with peers.

ii. Significant project management experience is crucial. The individual should be seen as the project management 'guru'.

iii. Demonstrate leadership qualities

iv. Financial management skills

v. Negotiations skills are required.

Apart from the requirements listed above, Anderson, Henriksen & Aarseth (2007) have uncovered other important competency requirements for PMOs:

i. Communication skills

ii. Business understanding

iii.   A sense of innovation

iv.   Holistic understanding of organisation and its projects

v.   General knowledge or competence within other areas besides project management.

Lastly, the PMO staff competencies should also be broadened to include strategic planning and investment analysis and they must also be able to implement knowledge management tools to capture, categorise and distribute best practices and lessons learned (Oracle, 2009).

2.4.2.5.Continuous improvements

The PMO should assess project performance and implement continuous improvement initiatives to design, develop and deploy a common project management methodology that will ensure project and proposal success, utilising an integrated approach across the business (Bolles & Hubbard, 2015). It should also assess lessons learned at the end of each project and incorporate these lessons in the new project charters, specifications and method statements.

2.5.Analysis of an effective PMO

The preceding section lays a foundation for the analysis of an effective PMO. This section is therefore dealing with the role, responsibility and the accountability of PMOs, the role PMOs play in public private partnerships (PPP) projects, and the role PMOs have in ensuring project success or failure. The section also deals with sector or industry specific PMOs and PMOs vs organisational performance.

2.5.1.   The role, responsibility and accountability of PMOs

The preceding sections painted a picture of a PMO as unit or an organisation within a business enterprise or a division with general oversight responsibilities of the project management activities of the business enterprise or division. From these sections it follows that, the PMO can have other names such as the Project Office (PO), Project Support Office (PSO), project portfolio management office and Project Management Centre of Excellence (PMCoE) with its role ranging from just project oversight, encompassing support, to strategic planning in the high level management organisations, portfolio management and programme management, including planning, control and reporting (Do Valle, E Silva & Soares, 2008). However, according to Bolles (2002), even though these titles or names have often been used interchangeably and it has usually been a matter of personal preference rather than application

of any particular standard, the titles and positions of the entities do carry significant meaning if used properly. Different titles eliminate confusion when communicating the distinctions among the various project management offices within the enterprise (Bolles & Hubbard, 2015). However, Bolles & Hubbard (2015) still believe that the positioning of the project management function within the enterprise's management structure is far more important and has a greater impact on institutionalising project management best practices, than the title assigned to the PMO. Bolles & Hubbard (2015) further allude that the position of a PMO within a hierarchical organisation establishes a degree of authority and autonomy and thus the responsibility for, establishing, distributing, and supporting project management best practices somewhere within the enterprise.

Table 2.5 shows the roles, responsibilities, accountability and authority of the PMO within the organisation or enterprise, and illustrates how the various types of PMOs might be implemented in large enterprises. Each PMO will depend on various attributes, such as the size of the organisation, the size of capital projects or grants in the case of municipalities, and the complexity of the projects within the various levels of the organisation. For smaller to midsized organisations and/or municipalities the number of layers and functional units should be adjusted to fit the amount of control required by the organisation, for the project related activity, at each organisational level. However, Bolles & Hubbard (2015) insist that, for a PMO to be regarded as a PMO, the unit must be a unique business function within the organisation, and not be an add-on to an existing function or department, and it must be effective on an enterprise-wide and enterprise-level basis. This should be the case even in the municipal model and framework.

The first column in Table 2.5 shows various PMOs and the role that they play at different levels of business within the organisation. It indicates whether the function is temporary or permanent and whether at the level at which it operates, there is a need for more than one unit or not. The second column indicates what role the unit plays at the operational level or describes the operational responsibilities of the unit. The third row indicates the positioning of the unit in terms of organisational accountability. That is to say, within the hierarchical structure, to whom does the unit report to, or where it is positioned. The last row indicates the requisite authority of the unit. This is directly related to or influenced by the positioning, or organisational accountability of the unit.

Table 2-5: PMO roles, responsibilities, accountabilities and authority matrix

Business-Level Role	Operational Responsibility	Organizational Accountability	Requisite Authority
Enterprise PMO One for enterprise. *Permanent function*	Strategic master planning. Tactical master planning. Project selection and prioritisation.	Enterprise – reports directly to the CEO	Review and approve master project portfolio and budget plans. Oversee portfolios and programs.
Division PMO One for each division, region, or portfolio *Permanent function*	Tactical master planning. Project-portfolio management.	Division, region, or portfolio – reports directly to Division manager or Enterprise PMO.	Establish project-portfolio operational and budget plans and authorise adjustments. Manage portfolios and oversee programs
Business Unit PMO One per business unit *Permanent function*	Operations master planning. Project-program management.	Functional business unit or program – reports directly to Division PMO.	Develop project-program operational and budget plans and authorise adjustments. Manage programs and oversee projects.
Project PMO One for each major or mission critical project *Temporary function*	Project initiation, planning, execution, monitoring, control, and closing. Management of project.	Specific major project – reports directly to Business Unit PMO.	Develop project operational plans and budgets and authorise adjustments. Manage, control, and report project progress.
Project Office One per project *Temporary function*	Project initiation, planning, execution, monitoring, control, & closing. May include management of project.	Specific project – reports to the project manager	Prepares and maintains project documentation as directed by the project manager.
Project Support Organisation (PSO) *Normally Temporary but may be permanent function*	Support administratively project initiation, control, planning, execution, monitoring, and closing. Provide project controls function.	One or more Specific projects – reports to various project managers or a business unit manager.	Report project progress and status
Project Management Centre of Excellence (PMCoE) *Normally Permanent function*	Establish, document, and promulgate project business management standards, methodology, practices, tools, training, templates, education, and PM competency.	No projects – Administrative function reports to management at the enterprise, division, or business unit level as applicable.	Maintain, update, and disseminate the project business management methodology, practices, tools, and project management communications such as status reports, and dashboards.

Source: Bolles & Hubbard (2015)

2.5.2. The role of PMO in Public Private Partnerships

The nature and the role of the PMO may change when part of its strategy is to also deliver public private partnership (PPP) projects. PPPs are deemed to be an effective approach to enhance project productivity, by bringing in management efficiency and creative skills from business practice into public sector. This reduces government involvement, by using the private sectors in the provision of public services (Shen, Platten & Deng, 2006). This is another way of improving the efficiency of managing risk in public sector projects. As PPPs are developed from the procurement strategy of build, operate and transfer (BOT), it normally involves the operation and maintenance of a project's service long after it has been built (or after the completion of the project). This contractual arrangement normally arises from the need to reduce the public sector's budget contribution to infrastructure investment and efficiency gains from the private sector can be imported to the public sector (Shen, Platten & Deng, 2006).

The South African government regulates the PPP agreements across all its spheres of government through the National Treasury PPP Practice Note number 07 of 2004. The practice note requires that PPP agreement management should start with the appointment of a project officer at the inception phase of the PPP project cycle and should continue throughout the PPP project cycle (Ministry of Finance, 2004). The module clearly defines the set of functions, with related responsibilities and tasks, which apply at different phases of the PPP project cycle and outlines the PPP project cycle as follows:

i) **The inception phase and feasibility study phase:** these phases cover the periods from Inception of the project by the institution until it has obtained the first Treasury Approval (TA:I) for the feasibility study.

ii) **The procurement phase** covers the period from when the institution has obtained TA:I until the signing of the PPP agreement, including all the TA:II and TA:III activities that must be carried out before the signing of the PPP agreement.

iii) **The development phase** begins from the signing of the PPP agreement and lasts until service delivery begins. It includes the transition to the new service delivery arrangements, and, depending on the nature of the project, may involve the design of facilities, the commissioning of goods and equipment, or the construction of buildings.

iv) **The delivery phase** refers to the period when services are delivered and used according to the PPP agreement's specified outputs, throughout the remaining life of the project.

v) **The exit phase** is towards the end of the life of the project – whether the project is ending through expiry or termination. Activities are wound up and the institution makes new financial and contractual arrangements for continued service delivery.

In practice, there will usually be some degree of overlap, particularly between the development and delivery phases and the delivery and exit phases. Furthermore, in different types of projects the relative importance of each phase may differ. Nevertheless, dividing the PPP agreement management into these phases provides a framework for considering the key challenges and tasks of the PPP agreement management throughout the project term. During each phase, different aspects of the three PPP agreement management functions – partnership management, service delivery management and PPP agreement management – will need to be undertaken (Ministry of Finance, 2004).

It is clear that the traditional project management process groups may not be adequate in this regard. If the PMO is intended to act as the project officer as per the requirements of the practice note, it should be adjusted to suit the project cycle, as stipulated above where the operation of the project is part of the project cycle. Project management processes should be amended to suit the PPP agreement. This aspect will have to be considered at the inception of the unit. It is in fact ideal to utilise the PMO concept rather than appointing an individual project officer to monitor the implementation of the PPP projects. This is because a switch from traditional public procurement methods to infrastructure provision under a PPP arrangement implies that a single role in the government (as a project manager) is changed to multiple roles (as a project manager, inspector, customer and partner) (Shen, Platten & Deng, 2006).

2.5.3. The role of PMO on project success or failure

Effective PMOs contribute to business growth by enlarging the breadth of the PMOs influence to extend from strategy formulation through to benefits realisation and it is positioned strategically for the sake of independence and senior management sponsorship (Oracle, 2009). They also integrate benefits realisation into the entire project lifecycle and report on it regularly (Oracle, 2009).

In general, PMOs are believed to enhance project success and create a processes framework that solves project failure problems (Spelta & Albertin, 2012). Based on Table 2.1 and Table

2.2, the PMOs contribution to organisational performance in general remains a continuous quest, but according to Aubrey *et al*, (2011), it does make a direct contribution to the organisation's return on investment (ROI), or customer satisfaction in the case of the public sector where strategic objectives are not necessarily expressed in terms of profit or value to shareholders. However, in their findings while conducting research on information systems (IS) project management practices, Martin, Pearson & Furumo (2007) discovered that, although PMOs do influence the ability to complete projects within budget, they have little influence on quality or schedule adherence. Their findings further indicated that there was no empirical support for the influence of a PMO in the use of standardised project management practices. This finding is further polarising the already existing differences and gaps in the literature of PMOs and their purpose. In diagnosing these findings, if it is true that the intended benefits of PMOs are not empirically supported, there is a chance that the PMOs are in danger of being a fad that the organisations follow without recognising any real advantage. However, this may be attributed to the lack of understanding some may have with regards to the typology of a PMO that is fit for a particular purpose, an issue which this research is attempting to address.

A more detailed assessment of the role of the PMO in project success indicates that the perception of success should not only be limited to time, cost and quality. There are well known cases of projects that were substantially late and over budget, but were later perceived to be very successful. Meanwhile other projects have been completed on time and at a cost, but have left investors dissatisfied because they had failed to deliver the desired benefits (Turner & Zolin, 2012). This suggests that PMOs cannot afford to limit their scope to the triple constraints of project success (time, cost and quality), since it proves to be an inadequate indicator of project success. Success should also cover total cost of ownership in relation to the project, this should persist during the lifespan of the project (utility, maintenance and operation). Shenhar & Dvir (2007) identified five categories of project success as indicated in Table 2.3. In this model, business success and preparing for the future extends the researchers assertion made earlier that the project success goes beyond the triple constraints of project success and utility. Maintenance and operations should be considered when looking at project success. For example, the aspect of business success goes further when including business viability issues. It has been emphasised that project management phases should go beyond the normal traditional cycle and cover maintenance and operations for the project to be deemed totally successful, particularly from a service provider point of view. This aspect is reflected in Table

2.6 under business success as service quality. Business is more generic as it covers commercial success.

In Table 2.6, Shenhar & Dvir (2007) basically show five key drivers for any project's success. These are efficiencies such managing cost overruns and meeting timelines, having a positive impact on the project team which can be seen through team satisfaction. There will be a resulting positive impact on customers, such as improved customer satisfaction, business success measured with ROI and finally preparations for the future such responding to any future changes.

Table 2-6: Model of project success

Efficiency	Impact on Team	Impact on Customer	Business success	Preparation for the future
Meeting schedules	Team satisfaction	Meeting requirements	Sales	New technology
Meeting costs	Team morale	Meeting specification	Profits	New market
Yield, performance, functionality	Skill	Benefit for the customer	Market share	New product line
Other defined efficiencies	Team member growth	Extent of use	ROI, ROE	New core competency
	Team member retention	Customer satisfaction	Cash flow	New organisational capacity
	No burnout	Customer loyalty	Service quality	
		Brand name recognition	Cycle time	
			Organisational measures	
			Regulatory approval	

Source: Shenhar & Dvir (2007)

Jugdev & Muller (2005) reviewed the literature on project success and concluded that four conditions are necessary, for success:
i) Success criteria should be agreed before and during the project
ii) A collaborative working relationship should be maintained between the project owner/sponsor and manager
iii) Project manager should be empowered to deal flexibly with unforeseen circumstances
iv) The project owner/sponsor should take an interest in the performance of the project.

Conditions (i) and (ii) have direct relevance to the setup of the PMO. The structure of the PMO should be such that there is a continued relationship between the project manager and the senior

management (as the sponsors of the project), or even a direct reporting line to the sponsors. Above that the, the project manager should be empowered to make decisions, in order for a PMO to implement projects successfully.

There are however certain aspects that can be attributed to the ineffectiveness and inefficiencies of the PMO and these can be classified as internal process, which constitute the implementation of the project itself. Some external factors that may contribute to the project failure are legislative, political, social and/or environmental factors and these are not within the PMOs control. The success or failure of the implementation process is an internally-oriented measure of the performance of the PMO (Pinto & Mantel, 1990). In understanding how projects fail, it is important to classify the approaches represented by the PMBoK guide, Capability Maturity Model Integration (CMMI) and the literature on critical success factors (CSFs), as the rational view of project management is one where project leaders are expected to follow a rational and consistent approach to project management and strive to achieve specific organisational goals (Shore, 2008). This perspective emphasises what should be done. For example, identifying characteristics of the project in the early stages, in order to determine the appropriate construction procurement systems (CPS) for a project, which may help in minimising the project failure (Rwelamila, Talukhaba & Ngowi, 1999).

In addition, project failure or success can be attributed to many factors outside the jurisdiction of the PMO. Rwelamila & Purushottam (2012) enlist critical factors that they refer to as African project failure symptoms cutting across all sectors. The symptoms includes among others:

i) Client/stakeholder dissatisfaction with the services
ii) poor planning in most projects
iii) no clear project implementation plan or charter
iv) consultation with Stakeholders is non-existent
v) no planning for project personnel recruitment and selection
vi) no monitoring and feedback mechanisms
vii) no troubleshooting strategies
viii) incompetent project managers
ix) excessive power and politics
x) negative impact from environmental events
xi) urgency is an elusive word

Rwelamila & Purushottam (2012) further argue that if project management is going to remain a means by which both public and private sector organisations achieve their objectives in Africa, these symptoms should be addressed with the seriousness they deserve. That can be successfully addressed by dealing with the causes of the symptoms, namely; the confusion of equating technical specialisation with project management competencies, inadequacy of project management training programmes and a lack of strategic project management. In supporting this argument Sage, Dainty & Brookes (2013) point out that some of the strongest narratives of project failure encountered concerned those that had experienced a change in project manager at some stage at least more than once during a project. Interestingly, these symptoms listed above can be directly linked to the ineffectiveness and inefficiencies of the PMO, particularly in the organisations where formal PMOs have been set up to support and implement projects. As a result, these causes should be addressed as early as possible preferably during the establishment phase of the PMO, in order to avoid PMOs that are in danger of being a fad that the organisations follow without recognising any real deal.

Spelta & Albertin (2012) have summarised the successes and the shortcomings attributed to the PMOs discussed above. Table 2.7 shows the summary of literature indicating the successes and the shortcomings attributed to PMOs.

Table 2-7: Successes and shortcomings attributed to PMOs

Successes	Shortcomings
• General improvement in project management; reduces the number of problem projects and improves customer satisfaction	• No empirical evidence of project performance gains
• Leads to a more efficient use of resources in a multi-project environment	• Increases overheads without offsetting benefits; increased red tape
• Need to implement strategic projects	• Stable environment without important projects to implement
• Attention to best project management practices	• Creates conflict among sectors in the organisation, generates resentment among project managers and causes loss of talent to project management
• Improved project status control and communication. Facilitates transfer of project management knowledge across the organisation.	• Project management methods and the results obtained are satisfactory

Source: Spelta &Albertin (2012)

2.5.4. Sector or Industry specific PMO

Is there a typology of PMOs aligned to a particular industry or sector? Additionally which areas or sectors have PMOs been more successful? These are the questions that this section is attempting to address through literature and will form part of the research content in an attempt to identify (if there are any) deficiencies of the current PMO model in South African municipalities and ultimately develop ways of improving efficiencies in developing the municipal PMO framework.

When addressing the typology of a PMO, and possibly identifying a pattern of unique municipal dependent factors or challenges that may dictate the type and level of PMO that is only suitable for municipalities and how it should be implemented. PMO descriptive characteristics such as size, level, positioning (or location within the organisational structure) and decision making authority are explored in this research. Hobbs & Aubry (2008) have conducted an empirical study analysing the typology of PMOs. They found that PMOs in the public sector differ very little from those in private organisations. The only significant difference was that PMOs in the private sector bill for their services in 71% of the cases, as compared to only 29% in the public sector. The following crucial finding was recorded by Hobbs & Aubry (2008):

> *'Not only did the design of PMOs in different industries or regions, in public and private sectors, in different sized organisations and managing different-sized organisations, and managing different sized projects not vary significantly, but the performance of the PMOs in these different contexts did not vary significantly either.'*

Therefore a thorough exploration of the characteristics of PMOs that could form the base for a typology is necessary, as this exercise is crucial in establishing a suitable framework of PMOs in municipalities.

2.5.5. PMO vs Organisational performance

Although the importance and the benefits of PMOs are hailed, there is limited research on the relationship between the existence of the PMO and project performance or organisational performance (Martin, Pearson & Furumo, 2007). A PMO will be legitimate if it can convincingly demonstrate its positive contribution to the organisational performance. However, Aubry & Hobbs (2011) argue that evaluating the contribution of a PMO to the organisational

performance is a complex question that may have as many variables as the PMO itself. Richard *et al.* (2010) point out that organisational performance encompasses three specific areas of an organisation's outcomes, namely: financial performance (profits, return on assets and return on investment); market performance (sales and market share) and shareholder return (total shareholder return and economic value added).

According to Aubry *et al.* (2011), PMOs can make a direct contribution to the organisation's return on investment (ROI), but Thomas & Mullaly (2008) as cited by Aubry *et al.* (2011) have convincingly shown that it is quite impossible to calculate any direct relationship between project management implementation and ROI. The assessment of the relationship between the PMO and the organisational performance needs to be adapted in terms of *value* instead of performance, in order to capture the business significance of the project management processes and implementation.

Figure 2.13 provides some empirical validation of competing values within the framework, which capture the pluralistic view regarding the contribution the PMO could make to organisational performance. The competing values framework has a great deal of potential for encouraging discussion on PMO performance and therefore can be used to evaluate the PMOs contribution to organisational performance (Aubry *et al.*, 2011). The models recognise the coexistence of sets of values used to underline people's perception of organisational performance and they articulate around two axis: flexibility/control and internal/external focus (Aubry *et al.*, 2011). The flexibility/control axis is a structure dimension (also referred to as the paradox between flexibility and control) where the PMO is perceived to be ambidextrous in developing ability in both control and flexibility (Aubry & Hobbs, 2011). The internal external dimension is a focus dimension (also referred to as the paradox between the internal and external dimension) where PMOs are focusing on both external and internal dimensions. There are four quadrants representing the models, each associated with a specific pre-existing model of organisational performance: the open system model, the human relations model, the internal process model, and the rational goal model, each representing a different concept of organisational performance (Aubry & Hobbs, 2011). The models consist of sixteen criteria that are associated with one of the four models as presented in Figure 2.13 each representing a different concept of organisational performance and the 17th criterion, output quality, is not associated specifically with any of the models (Aubry & Hobbs, 2011).
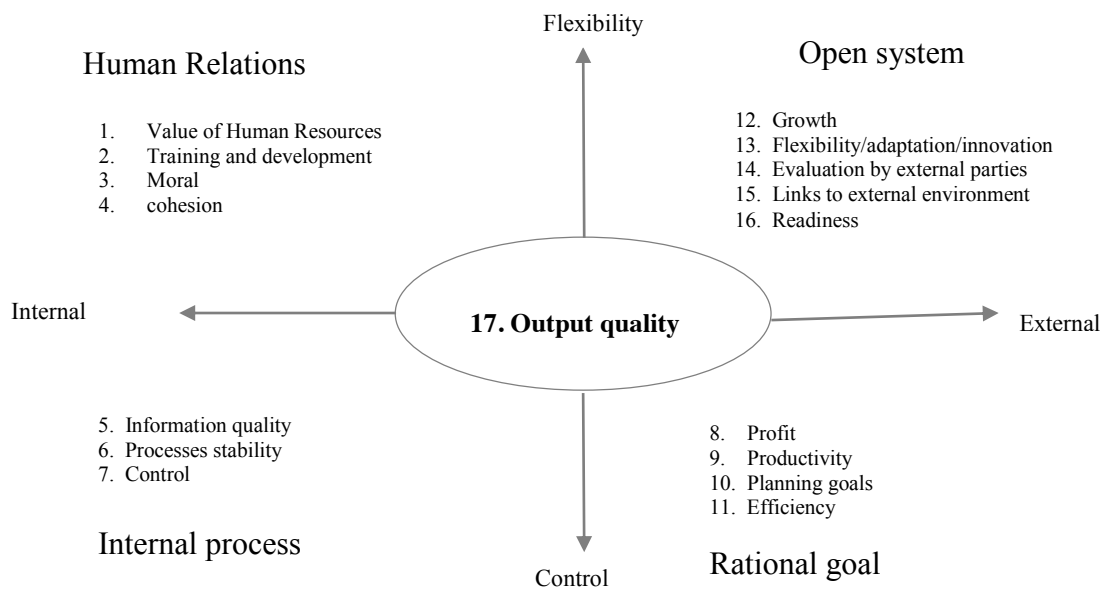
Figure 2-13: Models of organisational performance and their associated criteria
Source: Aubry and Hobbs (2011)

Apart from the framework underpinning value in Figure 2.13, the idea of value generated by project management is beyond the scope of this research. However, Hurt & Thomas (2009) declare that most organisations' attempt to implement and gain value from an investment in project management have resulted in the rapid growth of the particular organisation, yet in some cases, it resulted in the demise of the PMOs. Dai & Wells (2004) have also found that there is a higher level of project performance in organisations that have a PMO in comparison to organisations that do not have; and organisations that have a PMO have clearly done more than those that do not have a PMO in promoting project management standards and methods, historical archiving, training, and consulting and mentoring.

In the public sector, the PMO and organisational performance need to be adapted to realise value instead of performance, in order to capture the business significance of the project management processes and implementation. This is more relevant in the municipal environment where public service delivery and customer orientation is the core of the business. The ministry of public service and administration (1997) published a white paper on service delivery which embraced the '*Batho Pele*' (directly translated '*people first*') principles of governance throughout the public sector. The principles were developed by the ministry of public service and administration (1997), to serve as an acceptable policy and legislative

framework regarding service delivery in the public sector, furthermore the principles are aligned with the constitutional ideals of:

  i. Promoting and maintaining high standards of professional ethics
  ii. Providing service impartially, fairly, equitably and without bias
  iii. Utilising resources efficiently and effectively
  iv. Responding to people's needs; the citizens are encouraged to participate in policy-making; and
  v. Rendering an accountable, transparent, and development-oriented public administration.

It is therefore a requisite for a public entity, including the municipalities to adhere to these '*Batho pele*' principles in order to realise the above constitutional ideals. They are enlisted by the ministry of public service and administration (1997) as follows:

  i. **Consultation:** recipients of services should be consulted regularly including through the IDP process and customer surveys, meetings etc.
  ii. **Setting service standards:** This principle reinforces the need for benchmarks to constantly measure the extent to which citizens are satisfied with the service or products they receive from departments.
  iii. **Increasing access:** ordinary people, especially poor people living in rural areas should have equal access to services as those that lives in the cities.
  iv. **Ensuring courtesy:** service providers should empathise with the citizens and treat them with as much consideration and respect, as they would like for themselves.
  v. **Providing information:** As a requirement, available information about services should be at the point of delivery, but for users who are far from the point of delivery, other arrangements will be needed. In line with the definition of customers in this document, managers and employees should regularly seek to make information about the organisation, and all other service delivery related matters available to fellow staff members.
  vi. **Openness and transparency:** A key aspect of openness and transparency is that the public should know more about the way national, provincial and local government institutions operate, how well they utilise the resources they consume, and who is in charge. It is anticipated that the public will take advantage of this principle and make

suggestions for the improvement of service delivery mechanisms, and to even make government employees accountable and responsible by raising queries with them.

vii. **Redress:** This principle emphasises the need to quickly and accurately identify when services are falling below the promised standard and to have procedures in place to remedy the situation. This should be done at the individual transactional level with the public, as well as at the organisational level, in relation to the entire service delivery programme.

viii. **Value for money:** Many improvements that the public would like to see often require no additional resources and can sometimes even reduce costs. Failure to give a member of the public a simple, satisfactory explanation to an enquiry may for example, result in an incorrectly completed application form, which will cost time to rectify.

These principles clearly outline the purpose of each member of the project team, to fulfil the needs of someone else, that is; customers who can be internal or external to the public institution. This is a governance tool or instrument that can be used to measure performance, by creating opportunities to understand the customer's needs in order to have an immediate impact on improving project quality (van der Waldt, 2001). Consequently, even when there is no formal performance measurement of the municipalities, the impact of PMOs on municipalities can still be measured externally through 'Batho Pele principles, as the PMOs have a direct involvement with the communities through the implementation of the service delivery projects. Otherwise there is no direct documented evidence on how PMOs are currently impacting the performance of the municipalities, but the information available indicates a downwards trends in municipal performance in project delivery even with the existence of PMOs (SPAID, 2008).

A common pragmatic approach to performance measurement is based on a process oriented model in which performance measures of the PMOs themselves can be categorised into input, process and output as presented in the conceptual framework in chapter three (Pollanen, 2005). Theoretically, this approach can ideally be used by PMOs for self-assessment and reporting on performance by PMO managers for internal decision making and external accountability purposes. Input measures will quantify resources used in providing services and output measures will indicate the amount of work completed. Process will reflect the relationship between inputs and outputs, including the efficiency in the use of resources and task implementation and the powers or authority that is inherited in the PMO (Pollanen, 2005).

2.6. PMO performance variables

A conceptualised PMO has been described as an organisational body with series of levels dependent on the project management maturity level of the organisation within which it exists, and which can either be centralised or decentralised depending on the responsibilities assigned to it and the nature of the organisation, with an aim of improving the project performance through coordinated project management best practices. The related concepts or variables that arise from this definition such as the maturity level of the organisation, positioning (level) of the PMO within the organisation and its relationship to the maturity of the organisation within which it exists, authority or the powers of PMO and the purpose and the activities of the PMO have all been described in this chapter and/or the preceding chapter.

This section is therefore focusing on a conceptual framework that has the potential to embrace the complexity and the richness of the subject. A constructivist ontology where a PMO is a dynamic constructed entity is adopted. In this approach, a PMO is treated as a concept that enables the breaking down of barriers and boundaries which exist in the actual perception of the reality of the entity. The approach enables the researcher to demonstrate the linkage of the key variables which an effective and efficient PMO will mainly depend on. These include variables such as the *maturity level*, *position*, *authority*, *purpose*, *action* and *performance*. The next subsections distinguishes these variables by placing them into two groups, namely; variables for establishing PMOs and variables for operationalising PMOs, to demonstrate the relationship of the variables through a conceptual framework.

2.6.1. Variables for establishing PMOs

The variables for establishing a PMO entail an assessment process determining factors such as, the maturity level, purpose, size, positioning and the typology of the PMO. These variables are discussed in detail below in relation to Figure 2.14.

2.6.1.1.Assessment process

The assessment stage is the initial establishment phase that enables the organisation to clearly define the parameters, purpose or mandate, maturity level and perform gap analysis. The results of the assessment process should guide the eventual location and the size of the PMO. Furthermore, the purpose and typology are critical for identifying and defining the appropriate

tasks or actions to be undertaken by PMOs and for detailing the activity patterns that enforce the objectives of these tasks.

2.6.1.2.Positioning

Positioning refers to a structural organisation consisting of people and units in terms of formal status, situation and authority. The position further depends on the organisational maturity level of the organisation and the size of the organisation, in terms of its project implementation capacity. The operational, tactical and strategic objectives of the municipality will also dictate the positioning of the PMO.

The positioning of the PMO is critical. For the PMO to be effective, it must be acknowledged as an independent business unit functioning at the highest level of the enterprise (Bolles & Hubbard, 2015). This designation provides the assigned executive manager of the enterprise PMO with the authority, acceptance, adoption, and autonomy required to establish, monitor, and control the distribution of the resources needed to successfully utilise project business management best practices enterprise wide (Bolles & Hubbard, 2015). Therefore, the lower the PMO is positioned within the enterprise, the lower the beneficial impact that the PMO can have on the enterprise's overall business and financial position in the marketplace will be (Bolles & Hubbard, 2015).

2.6.2. Variables for operationalising PMOs

The operational variables entail actions or activities, authority and performance. These variables are discussed in detail below in relation to Figure 2.14.

2.6.2.1.Actions

Action refers to the way in which activities are accomplished (Aubry, Hobbs & Thuillier, 2007; Bolles, 2002) and is heavily influenced by the mandate authority and typology. The purpose and the typology of the PMO guide the tasks within the parameters of that particular PMO. For example, Figure 2.9 and Figure 2.10 demonstrate a PMO that has implementing, delivery (or knowledge) and supporting functions. This is often called a hybrid PMO as classified by Valle, E Silva & Soars (2008) and is suited for the municipalities as they are expected to provide implementing and supporting functions.

A major influence on the actions or tasks of the PMO is its authority, which can be assessed by the organisation's first-tier senior management, who are typically the owners of the firm's project portfolios and the determinants of the authority within the PMO (Unger, Gemunden & Aubry, 2012). Therefore a set of defined activities or a predetermined purpose for the unit determine the extent of powers that should rest within the PMO

2.6.2.2.Authority

Hobbs & Aubry (2008) indicate that, decision-making authority and the percentage of projects within the PMOs mandate are strongly related to one another. The output is improved by efficient project performance which is also influenced by the organisational strategies and the actions or tasks. When actions (in this case, a key action or task for each municipality will be to convert the MIG into infrastructure development) transform into organisational performance service delivery is realised.

2.6.2.3.Performance

Performance in this case refers to both the PMOs performance and the organisation's performance as a whole and it is defined as a subjective construct anchored in the values and preferences of the stakeholders (Aubry & Hobbs, 2011). The values and the preferences of the stakeholders (beneficiaries) in the case of municipalities will translate into improved service delivery. Meaning performance is realised when the MIG is converted into infrastructure development and the ordinary households or end users begins to reap the benefits and see the value added in their everyday lives.

2.6.3. Theoretical framework

Figure 2.14 shows a theoretical framework capturing an ideal PMO from its establishment or assessment stage where a PMOs position, actions, performance and establishment process are the key ingredients to a successful PMO. Pellegrinelli & Garagna (2009) confirm that each PMO has a unique structural arrangement, designed to fulfil a specific organisational strategy or objective. The variables are discussed in detail in the preceding subsections above and they all have a major influence on success or the effectiveness of the PMO. All the variables are directly influenced by the assessment phase and the framework is based on the project management process or process groups, which provide the fundamental building blocks for establishing an effective PMO. Bates (2003) suggested three phases of PMO implementation

namely, the assessment phase, the planning phase and the implementation phase. The operational, tactical and strategic objectives provide guidelines for the positioning of the PMO with its dependent characteristics as shown in Figure 2.14. The arrows indicates that all the three key variables namely position, action and performance actually depend on what transpired during the assessment phase. The assessment stage or phase is a critical stage where the right decisions regarding the type of PMO that is suitable for the organisation are made. This stage should cover needs analysis in terms of the mandate, organisational strategies and objectives and gap analysis, in terms of the project management maturity level of the organisation. The bottom arrows indicate that the position of a PMO within the organisation establishes its degree of authority and autonomy, which will in turn influence its actions. Moreover, the actions will be influenced by the typology (type of the unit) and mandate or purpose determined during the assessment stage. The actions eventually influence the performance of the unit.
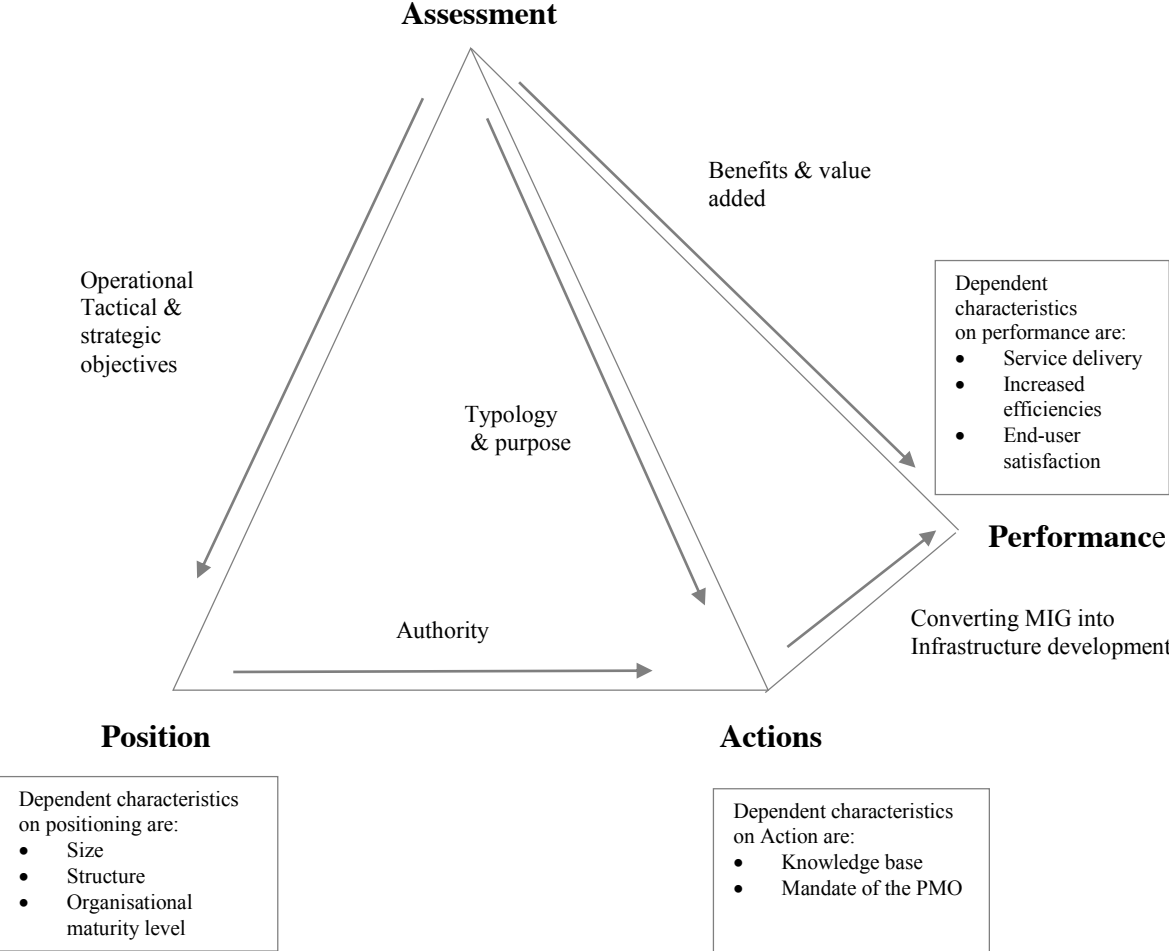
Figure 2-14: Theoretical framework for municipal PMO

2.7.   Chapter summary

In this chapter, a review of the theory and practice of PMOs was carried out, by first exploring PMOs and their expanded meaning before outlining best practice methodologies and highlighting various BoKs. These best practices were brought in when dealing with establishing and operationalising PMOs. After deliberating on the establishment and operating aspects, it was then fit to start analysing an effective PMO from a theoretical perspective. The analysis took into considerations the role of a PMO and its impact on the success and failure of projects. In addition PPPs and issues of organisational performance were examined, before finally dealing with PMO performance variables and the conceptual framework which explains the main characteristics, key factors and concepts or variables that were investigated in this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1.Introduction

This chapter discusses the research methodology used for achieving the research aim and objectives stated in Section 1.6. The term methodology represents a system of procedures on which research is based and against which claims of knowledge are evaluated (De Vos, 2001) and it includes brief details of how the collected data is analysed and reported. Neumann (2004), defines a research methodology as a portion of the research in which the methods to be used to collect and analyse data are specifically outlined. Therefore this research methodology focuses on the research process and the kind of tools and the procedures used (Mouton, 2001; Bryman, 1998).

Furthermore, the chapter provides a theoretical background for various research strategies and then lays the theoretical foundation on which the research strategy employed to collect and analyse research data is premised. In addition, the Chapter summarises in a logical format the various data management processes and activities that were put into place, to effectively collect and analyse research data. Therefore, the chapter provides an outline of the plan of action and the research method that was followed. It is divided into eight sections. The next section discusses in detail the research process, while the third section describes data collection methods and research instruments used. The fourth section presents data analysis techniques. The fifth section defines how the reliability and validity concerns were tackled and the sixth section discusses limitations and ethical issues. The last section presents a pilot study before wrapping up the chapter with a summary.

3.2.The Research process

This study adopts a generic research process that allows the researcher to depict the issues underlying the choice of research design, as described by Saunders *et al*. (2007). Figure 3.1 illustrates the research onion as proposed by Saunders *et al*. (2007).
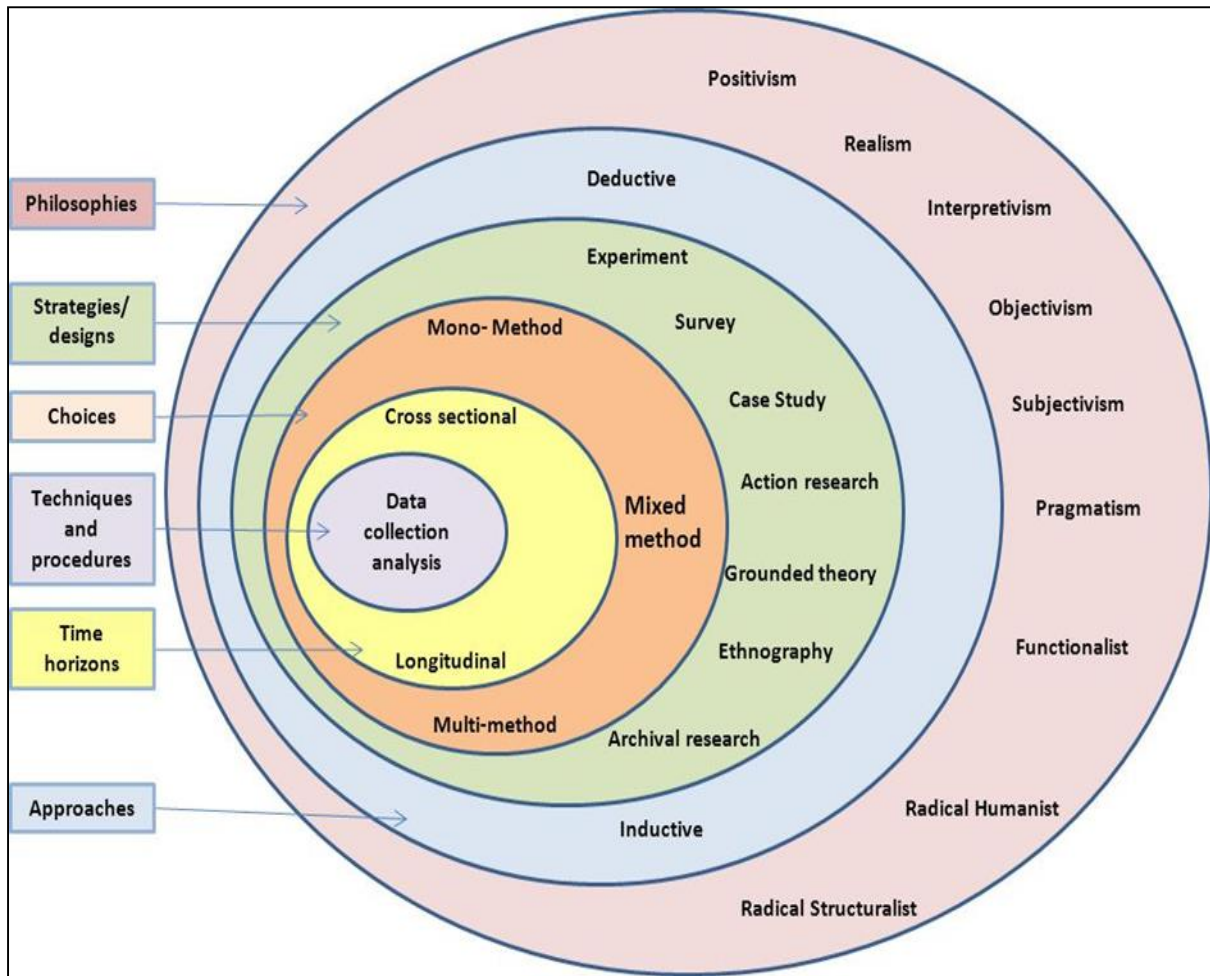
Figure 3-1: Research Onion outlining the research process
Source: Saunders *et al*. (2007)

In line with Saunders *et al*. (2007) the onion approach presents a favourable structure with a clear framework for the most suitable methods and strategies that helped in addressing the research aim and objectives in this study. As per the onion, the following aspects are covered:

- i. Research philosophy
- ii. Approach
- iii. Research strategy/designs
- iv. choices
- v. Time horizons
- vi. Techniques and procedures

3.2.1. Research philosophy

It is the view of the researcher that the research aim and objectives should objectively help in determining the selection of the most suitable philosophy, or philosophies that should be

followed. The researcher is also of the view that the research aim and objectives for this study necessitate an interpretivist philosophy.

The aim of interpretivist philosophy is to understand how members of a particular social grouping, (in this case, members of PMOs, municipality officials and end-users of the services provided by the municipalities, community leaders and service providers) through their participation in implementation of service delivery projects, enact their particular realities and endow them with meaning, and to show how these meanings, beliefs and intentions of those responsible for providing these services help to constitute their actions. Meaning, believe, intentions and actions are cognitive elements that form part of ontological description of interpretivist philosophy (Goldkuhl, 2012). And these cognitive orientation is pivotal in understanding the role players and their views and interpret the existing meaning system shared by these role players in this set up (Goldkuhl, 2012). This is because the interpretivist approach takes the influence of the context on human behaviour into account and the emphasis is on developing and the understanding of individual cases. Also, the interpretive approach assumes that access to reality is only possible through a social construction such as language (project management jargon), consciousness and shared meaning and generally attempts to understand phenomena through the meanings that people assign to them (Boland, 1985). In the interpretivist approach, the social process is not captured by hypothetical deductions, covariances and degrees of freedom. Instead, understanding the social process involves getting inside the world of those generating it (Orlikowski & Baroudi, 1991). So the idea is to choose a research philosophy that will factor in the influence of both the researcher and the participant's perspectives, hence the interpretivist philosophy is deemed appropriate for this study.

3.2.2. Approach

Saunders *et al* (2007) states that an approach can take either two forms, deductive or inductive approach. According to Saunders *et al*. (2007), the features of inductive approach include among others, gaining an understanding of meanings human attach to events, a close understanding of research context, a collection of qualitative data and a more flexible structure to permit changes of research emphasis as research progresses.

So, in the light of the above mentioned philosophy, an inductive approach was implemented. Generally, inductive approach would involve observations and theories are proposed in the end

of the research process. This normally involves search for patterns from observations and the development of theories from those patterns.

As indicted above, epistemological stance on interpretive approach is that knowledge of reality on the ground is gained only through social construction such as language, meaning, documents and tools (Boland, 1985). Also, in an interpretive research, there are no predefined dependent and independent variables, but a focus is on the complexity of human sense-making as the situation emerges (Kaplan & Maxwell, 1994).

3.2.3. Selected research strategy for the study

A multiple case study strategy is adopted from an epistemological perspective. A case study method refers to study of a particular individual, program, or event in depth for a defined period of time and it is suitable for learning more about a little known or poorly understood situation (Leedy & Ormrod, 2005). It may also be useful for investigating how an individual or program changes over time, perhaps as a result of certain circumstances or interventions (Leedy & Ormrod, 2005).

Its aim is to build theory and inform practice in similar situations by comparing and proposing generalisations, (Leedy & Ormrod, 2005). According to Larsson & Lowendahl (1996), the case study research method has been the qualitative method mentioned the second most often in studies published in the organisational sciences. Although its main purpose in management literature has been to generate new theories, Yin (1994) argues that case study research lends itself to the testing of existing theory. Yin (1994) particularly suggests that case study research is best suited to the examination of why and how contemporary, real life organisational phenomena occur, but under conditions where researchers have minimal control.

Methods used in case studies include interviews, observations, historical records, the study of documents and audio-visual materials (Leedy & Ormrod, 2005). It is important to note that, just like most other methods, case study research addresses many of the questions traditionally answered by laboratory or field experiments, the major difference however, is that case study research does not require the control and manipulation of variables (Lee, 1999).

Its major weakness is mainly realised when a single case is involved and it transpires that a researcher cannot be sure that the findings are generalisable to other situations (Leedy &

Ormrod, 2005). But in this research, this weakness was overcome by multiple case study approach.

The analysis of this research study was based on the case study strategy. The multiple case study model as described by Eisenhardt (1989) was used as the primary methodological framework, as outlined in Table 3.1. Table 3.1 shows Eisenhardt (1989)'s process of building theory from a case study – from specifying the research aim and objectives to reaching closure step by step. The first column shows the steps that have been taken in building up a case study and the second column details with all the activities that were involved in each step. The last column indicates the justification for each step and activities that were carried out. This process was followed in this research in a quest to build theory from the three cases. The process was highly iterative and tightly linked.

Table 3-1: Process of building theory from case study research

Step	*Activity*	*Reason*
Getting started	• Defining the research aim and objectives	Focuses effort and provides better grounding of construct measures
Selecting cases	• Theoretical non-random sampling	Focuses effort on theoretical useful cases and retains theoretical flexibility
Crafting instruments and protocols	• Multiple data collection methods • Qualitative data	Strengthens grounding of theory by triangulation of evidence
Entering the fields	• Overlapping of data collection and analysis, including field notes.	Gains analysis and reveals helpful adjustment to data collection
Analysing data	• Within-case analysis • Cross-case pattern search using divergent techniques	Gains familiarity with data and preliminary theory generation and forces investigators to look beyond initial impression
Shaping hypothesis	• Iterative tabulation of evidence for each construct • Replication, not sampling, logic across cases • Search for evidence of 'why' behind relationships	Sharpens construct definition, validity and measurability and builds internal validity
Enfolding literature	• Comparison with both conflicting and similar literature	Builds internal validity, raises theoretical levels and sharpens construct definitions.
Reaching closure	• Theoretical saturation when possible	Ends process when marginal improvements becomes small

Source: Eisenhardt (1989)

The multiple case study approach had in effect formed part of the comparative study approach, where the same questions were asked in different municipalities and compared with each other to draw conclusions. In this study, interviews were used as the primary data collection method in identifying factors considered in the establishment of PMOs and they were also used to assist in analysing the PMOs and their fitness for purpose and in identifying any patterns of municipal dependant factors.

With this strategy, it was possible to build up the case data through interviews, written documentation and observation. When planning for the interviews, it was envisaged that multiple viewpoints would be covered by interviewing both customer (municipal manager) and service provider (PMO manager) to validate the results of the case study. This was also done to capture the perspective of an outsider, when determining whether the projects are being implemented successfully by the PMO and if not, what can be done to improve the situation. The non-project team members from outside the PMO constituted the stakeholders such as the internal clients, external clients, project sponsor (National government official responsible for the MIG), service providers such as contractors, consultants and end-users.

3.2.4. Research Choices and time horizons

The Inductive approach was preferred in this study and the research choice as per Saunders *et al*. (2007)'s onion is a mono-method research approach, which was based on the multi-case study design strategy. This was achieved through a cross sectional time horizon. According to Saunders *et al*. (2007), time horizons are needed for the research design independent of the research methodology used. There are two types of time horizons namely Longitudinal and Cross-sectional. Longitudinal studies are repeated over an extended period. Cross sectional studies are limited to a specific time frame. This research was therefore limited to a specific time frame and hence the cross sectional time horizon is used.This was chosen to improve the reliability of the results. The multiple case study strategy allowed one to build theory from the three cases through the comparative study approach, with emphasis on the contextual analysis of each case and their relationships.

3.2.5. Sampling methodology

This section defines sampling methodologies, techniques and procedures followed in this research. It also defines the targeted population/municipalities of this research study.

3.2.5.1.Targeted Municipalities (selection criteria)

Methodological guidelines for case selection differ between single and multiple case designs. When the study involves more than one case, the strategy for case selection changes because the focus shifts to the issue of external validity of the case inquiry. External validation, in terms of the limited generalizability of the findings can be established through the replication logic of the multiple case study design (Shakir, 2002). The selection of the three case studies in this research follow therefore this (literal) replication logic. In the literal replication logic, cases are selected to predict similar results. The three chosen cases (municipalities) were expected to largely have similar settings and to achieve similar results.

For the purposes of this case study, only three municipalities in Limpopo were chosen. These were the municipalities that were willing to share information and whose staff were available for interviews. Considering that the PMOs were established in a similar manner with a similar mandate and resourcing strategy, the targeted municipalities are expected to provide a meaningful insight regarding the problem of infrastructure and service delivery backlogs (Ministry of Local Government, 2007).

As already indicated, category B and C municipalities are the most affected in terms of service delivery backlogs in respect of infrastructure projects. The three selected municipalities in category B and C are Polokwane municipality, Mogalakwena local municipality and Capricorn district municipality respectively. These municipalities were researched by evaluating the views, beliefs, attitudes and the application of project management principles by the project managers (and/or PMO managers), technical directors and municipal managers.

The population of this research are the municipal employees, service providers and the stakeholders of the three selected municipalities mentioned above and those with expert knowledge in provincial and national government.

3.2.5.2.Respondents within the targeted municipalities

In order to cover multiple viewpoints in the data set, key interviewees included the respondents as summarised in Table 3.2. They include:

PMO manager – this is a project manager or the project management unit manager responsible for the operationalisation of the PMO and the implementation of the infrastructure projects within the municipality. He is therefore a key service provider to the municipality who ensures that the projects are delivered. He should be able to understand the failures and the successes of the PMO.

Municipal Manager – this is an accounting officer of the municipality and all service delivery failures are attributed to him. He is the primary (internal) customer of the PMO manager. He is also at the centre of the PMO establishment and is expected to contribute a wealth of information regarding PMO establishment and to assist in identifying any patterns of municipal dependent factors that may dictate the type of PMO that is suitable for the municipalities.

Project Sponsors (external customers) – these are the project sponsors from the national and provincial offices of the Ministry of Local Government. This ministry is pivotal in drafting establishment documents and guidelines documents. The PMO is in a way providing services to this ministry as well, in addition to the municipality (the internal customer). Only three project sponsors were interviewed and they are the same for all the three municipalities. This is because all the municipalities report to the same national and provincial ministries of local government.

Community leaders and/or councillors – community leaders and/or councillors were interviewed. Preferably, members of mayoral council (MMCs) in any service delivery related activities: infrastructure: roads and storm water: water and electricity were targeted as these are expected to share a more meaningful information and add value to the study. The MMCs are assumed to be directly involved in the implementation of infrastructure programmes for the municipality and therefore should have an idea on what attributes to the failures and backlogs related these infrastructure programmes. Community leaders can also be non-politically aligned representatives of a community and are end-users themselves, also representing end-users and/or beneficiary of services delivered by the municipality. These are external participants and by working with political figures and community members in addition to the key role players such as the municipal manager and the PMO manager, particularly in a setup where service delivery has been depleted, the outcome of the interviews may yield a wealth of hidden information. Moreover, this may enrich the research as multiple viewpoints were gathered in the data set and were also used to validate the information sourced from the municipal manager and the PMO manager. This is despite the fact that collaboration with the community members

may not be practical if the community members are not interested in the goals of the research. In as much as the community members participated in the IDP programmes, it can be argued that the community members also should participate in the development and the conceptualisation of the PMOs, if they are to function effectively towards service delivery. As such an 'empowerment model' as opposed to a 'lone wolf' approach is ideal in this study, where community is to a certain extent, engaged in the research (Crippen & Robinson, 2013).

Service Providers: These could either be professional service providers like consulting engineers or contractors that have entered into a service level agreement with the municipalities, in provision of the infrastructure services to the municipality. Normally, these service providers are managed by the PMOs within the municipalities and therefore should be able to provide a different perspective in the data set. Just like the community members and the politicians, these service providers are external and the ideal scenario is to push for an inclusive empowerment model of research.

All the interviews were arranged in advance with the relevant participants at the time that was convenient to everyone. They were held at the place of work of the interviewee or at any convenient place for the interviewee. One on one interviews were held instead of focus groups to increase the response rate and cope with their busy schedules.

Table 3.2 shows the summary of the research respondents within the targeted municipalities, including the sampling method and the data collection method that was applied in this research. In total, 27 people were interviewed across three municipalities. The first column named classification, refers to the stratified sampling of various participating groups described above. The second column "research respondents', is further filtering the stratified sampling group to identify the role or position of each respondent within the stratum. The third column indicates the number of participants in each stratum. The fourth and fifth columns show the sampling method and the method of data collection respectively.

Table 3-2: Research interviewees within the targeted municipalities

Classification (stratified sampling)	Research interviewees	Number of participants per municipality	Sampling method	Method of data collection
Within the PMO	Project Manager/PMO Manager	1	Within case sampling	Interviews – qualitative
Internal customers	Municipal manager	1	Within case sampling	interviews - qualitative
End-users/ beneficiaries	Community leaders/councillors	3		
Service providers	consultants/Contractors	3		
External customer	Project Sponsor from Provincial and National Office	3	Case study sampling	Interviews - qualitative
Total per municipality		**11 interviews**		
Total for the study In 3 municipalities and sponsors from provincial and national government.		**27 interviews (8 per municipality x 3 municipalities) plus 3 project sponsors from the Provincial and national office.**		

3.3.Data Collection and Research instruments

This section describes in detail the major data collection methods, approaches and the research instrument designs that were used in this study.

3.3.1. Data collection method and approach

The major data collection methods that were used in this study are interviews, documentation reviews and observation. This section discusses the data collection methods and the approach used in the study.

3.3.1.1.Interviews

Interviews are normally used to collect data from selected participants in order to find out what they do or think, or to determine their attitude towards a particular phenomenon. A positivist approach suggests structured, closed questions that have been prepared beforehand, for example, market research surveys. On the other hand, the interpretivist approach suggests unstructured questions where the questions have not been prepared beforehand. According to Easter-Smith, Thorpe & Lowe (1991), unstructured or semi-structured interviews are the most appropriate method when it is necessary to understand the construct that the interviewee uses, as a basis for his or her opinions and beliefs about a particular matter or opinion; and when the step by step logic of the programme is not clear. However, the interviewee may be reluctant to be truthful about the real issues at hand unless confidentiality in a one on one basis is guaranteed.

The unstructured and semi-structured interviews were adopted in this study, with the key project management personnel within the three municipalities. This method forms the backbone of the cases and is pivotal in identifying the principles/factors considered when establishing a PMO and gathering information that can be used in analysing the PMOs' fitness for purpose. The interviews will also help to identify any patterns of municipal dependent factors, or characteristics that may dictate the type of project management office that is suitable for the municipalities and how it should be implemented. This process will eventually lead to developing an appropriate framework for PMOs in municipalities.

A pre-arranged environment was organised through appointments with a PMO manager, municipal manager, external service providers, project sponsors and the community members and all the participants were requested to conduct one on one interview sessions with the researcher. Face to face interviews are preferable but telephonic interviews were also arranged, where a face to face engagement was not feasible. Subsequently, the administered approach for the interviews was semi-structured, one on one, face to face, open ended interviews. This

approach was used in this study because as according to Bernard (1988), it is the best approach when the researcher is not able to get more than one chance to interview someone and it can provide reliable, comparable qualitative data.

Since semi-structured interviews often contain open-ended questions and discussions may diverge from the interview guide, all interviews were tape-recorded and the transcript of the tapes was kept for analysis. The flexibility of the open-ended approach helped to reveal how the participants construct their reality and think about situations, and not just to provide answers to the researcher's questions and illustrating their own implicit construction of reality (Yin, 2003).

The same set of unstructured interview questions were asked to the PMO manager and the municipal manager in all municipalities, in order to draw any sharp contrasts and/or similarities in their responses. Another set of interview questions was designed for community leaders or councillors in all the three municipalities. In addition, the service provider and the sponsor will each have his/her own set of dedicated questions. A blanket interview question cannot be applied to all these participants, as different information was sought from different participants to achieve specific objectives.

3.3.1.2.Documents review

Government gazettes, archived records, project management methodology documentation, municipal project implementation plans and project quality plans, guideline documentation on establishing PMOs in municipalities, dairies and any other relevant documentation are defined as a method of collecting data that can be used under either a phenomenological or a positivist methodology (Hussey & Hussey, 1997).

The documents listed above constituted the document review exercise that was conducted to get an impression of how programmes operate, without interrupting the programmes themselves.
The review is expected to identify, for example, the project management methodologies, standards and procedures, memos and minutes used in the municipalities. This helped in crafting the interview process in identifying and analysing the principles/factors considered in

establishing a PMO and analysing their fitness for purpose. The PMO manager was formally requested to supply documents that would be useful for the review process.

3.3.1.3.Observations

The observation method was be used to collect primary data in this study. Unlike interviews, the observational technique relies not on what people say but what they do, it is an actual observation of what they do and it can generate data and findings, which would have been impossible to discover by any other means (Lancaster, 2005). Apart from the obvious the conventional methods of collecting observational data through one's own five senses, like taking field notes and ultimately creating a narrative based on what the researcher may have seen, heard, or otherwise sensed, mechanical devices such as audio-tape recorders may also be useful.

A non-participant observation approach was adopted for this study where the researcher observed the processes, implementation methodologies in action and activities as they are carried out, by each PMO in the three chosen municipalities. The researcher is expected to create time to spend a number of full days on the PMOs actual project site, where implementation and activities are taking place, as this will form part of the observation process. The observation setup was conducted in a structured manner where the PMO manager was provided sufficient notice that the researcher would be spending a week or so in their office, to observe their daily activities and processes related to their role in implementation of infrastructure projects. This process will aid in analysing the current format of PMOs and their fitness for purpose and in developing a more effective and efficient PMO framework.

3.3.1.4.Summarised methods of data collection

Table 3.3 summarises the data collection methods clearly showing the advantages and the challenges of each method. The first column shows the methods that were used for comprehensive data collection. The second column shows the purpose of using each method and the last two columns show the advantages and the challenges.

Table 3-3: Summary of major methods of collecting data

Method	Overall purpose	Advantages	Challenge
interviews	Used to understand someone's impression or expression about the municipal PMOs	• Get full range or depth of information • Develop relationship with the client	• Can be time consuming • Can be difficult to analyse and compare
Documentation review	Used to get impression of how the programme operates	• Comprehensive and historical information	• Can be confusing if not clear about what one is looking for. • Information may be incomplete
Observations	Provide an insight and understanding of the situation	• Inexpensive to administer	• May take longer time and requires the researcher to be physically on site

Source: McNamara (1998)

3.3.1.5.Data collection approach

Table 3.4 summarises the data collection approach taken. The table shows how the objectives are linked to the data collection methods, instrument designs, data analysis, tools and the expected outcomes. The first column in Table 3.4 shows the list of objectives and the aim of the research. The second column illustrates the data required in order to achieve each objective. The third and fourth columns present the source of the data and the data collection method respectively, while the fifth column highlights a section where an instrument design related to the collected data is discussed in detail. The last three columns show the data analysis method, tools and the expected outcomes. The data analysis method mainly entailed content analysis, which is explained in detail in Section 3.6 and the data analysis tool used was NVIVO 11.

Table 3-4: Data collection approach

1:Research objectives (RO) & Research aim (RA)	2: Data required	3:Source of data	4:Data collection method (data instrument)	5:Instrument design	6:Data analysis method	7:Data analysis tools	8:Expected outcome
(RO$_1$): To identify and analyse the principles/factors considered in establishing PMOs in the three selected South African municipalities.	Principles/factors underpinning PMO establishment	Documents	Document review	See section 3.5.2.	Content analysis but see more details in section 3.6	NVIVO 11	List of factors that were considered in establishing PMOs
		Municipality staff Sponsors from National and Provincial Office	interviews	See section 3.5.2.	Content analysis but see more details in section 3.6	NVOVO 11	
(RO$_2$): To analyse the level of fitness for purpose of the PMOs in the three selected municipalities	Determinant factors for fitness for purpose	Documents Recorded/observed Notes	Document review Observations	See section 3.5.2	Content analysis but see more details in section 3.6	NVIVO 11	Determination of the fitness for purpose
		Municipality staff Sponsors from National and Provincial Office Consultants/contractors Community leaders/councillors	Interviews	See section 3.5.2	Content analysis but see more details in section 3.6	NVIVO 11	
(RO$_3$): To analyse patterns of municipal dependent factors that dictate the type of PMO that is suitable for the municipalities	Patterns of municipal dependant factors	Municipality staff Consultants/contractors	Interviews	See section 3.5.2	Content analysis but see more details in section 3.6	NVIVO 11	List of municipal dependant factors that dictate the type of PMO for municipalities
		Documents Recorded/observed notes	Observations Document review	See section 3.5.2	Content analysis but see more details in section 3.6	NVIVO 11	
(RA): To develop a conceptual framework for the establishment and operation of PMOs in the South African Municipal Environment.	Synthesis from all above findings						

3.3.2. Instruments design

There are four research instruments which cover four sets of interview questionnaires. With non-structured or semi-structured questions for the municipal managers and the PMO managers, external service providers, national and provincial sponsors and community leaders. These instruments were used in the primary data collection phase and are shown in Appendices 2, 3, 4 and 5. Each instrument is designed to collect the required data in line with the objectives of the study. Additional sections on the instruments have been added to include supplementary or supporting questions. Other data collection methods to be used in the study will not require specific instruments to collect data.

Table 3.5 shows how interview instruments have been designed and how each one fulfils an objective. The first column presents appendices of each instrument used and the second and third columns show the sections of each instrument and its corresponding purpose respectively. The last column indicates which research objective is outlined or described on the purpose section.

Table 3-5: Interview Instrument Design

Appendices/Instrument description	Sections	Purpose	Objective
Appendix 2: Instrument for municipal manager and the PMO manager	A	Demographic profile of respondents	none
	B	To identify and analyse the principles/factors considered in establishing PMOs in	Objective 1
	C	To analyse the level of fitness for purpose of the PMOs in the three selected municipalities	Objective 2
	D	To analyse patterns of municipal dependent factors that dictate the type of PMO that is suitable for the municipalities	Objective 3
Appendix 3: Instrument for external service providers	A	Demographic profile of respondents	
	B	To analyse the level of fitness for purpose of the PMOs in the three selected municipalities	Objective 2
	C	To analyse patterns of municipal dependent factors that dictate the type of PMO that is suitable for the municipalities	Objective 3
Appendix 4: Instrument for Sponsor –National and provincial MIG offices	A	Demographic profile of respondents	
	B	To identify and analyse the principles/factors considered in establishing PMOs in	Objective 1
	C	To analyse the level of fitness for purpose of the PMOs in the three selected municipalities	Objective 2
Appendix 5: Instrument for community leaders.	A	Demographic profile of respondents	none
	B	To analyse the level of fitness for purpose of the PMOs in the three selected municipalities	Objective 2

3.4.Data analysis

According to De Vos (2008) data analysis is the process of bringing order, structure and meaning to the mass of collected data. In case study research, data analysis would typically be inter-woven with data collection right from the first case or interview session (Miles & Huberman, 1994). This allows theory to develop alongside the growing volume of data and often leads to new questions and new data collection and even reformulation of the research aim and objectives (Ghauri & Gronhaug, 2002; Miles & Huberman, 1994). It was therefore appropriate to procedurally finish with analysing the first case before starting with the second case. This sequence improved the data collection technique in the subsequent cases (Ghauri & Gronhaug, 2010). This form of analysis is called content analysis. It is a detailed and systematic examination of the contents of a particular body of material with the aim of identifying patterns, themes or biases and is usually performed on various forms of media including books, newspapers, films, videotapes and etc. (Leedy & Ormrod, 2005). Also, it is a systematic observation of open-ended questions and structured interviews, used to report the essence of such interviews both quantitatively and qualitatively. This involves the systematic analysis of the content to record the relative incidences or the frequencies of themes (Welman & Kruger, 1999). Holsti (1969) offers a broad definition of content analysis as, "any technique for making inferences by objectively and systematically identifying specified characteristics of messages.

Berelson (1952) defines Content Analysis as "a research technique for the objective, systematic, and quantitative description of a manifest content of communications".

It can be a useful technique for allowing a researcher to discover and describe the focus of an individual, group, institution, or observe something of social significance (Weber, 1990). It also allows inferences to be made, which can then be corroborated using other methods of data collection (Weber, 1990). Krippendorff (1980) notes that "much content analysis research is motivated by the search for techniques to infer from symbolic data what would be either too costly, no longer possible, or too obtrusive by the use of other techniques".

The methods involved in employing content analysis in a research include identifying body of material to be studied and specifying qualities or characteristics that were examined.

According to Busha & Harter (1980), content analysis has its short comings both theoretically and procedurally and they include among others:

- Can be extremely time consuming

- Is often devoid of a theoretical base, or attempts too liberally to draw meaningful inferences about the relationships and impacts implied in a study.

This strategy was used in this study to conduct a systematic analysis of the content from interviews conducted, government gazettes, guideline documentation and any other relevant government documentation or publications, to record the relative incidence or frequencies of themes or patterns.

Ghauri & Gronhaug (2010) clearly outlines that, while case study analysis may not be an isolated process, it still involves distinct processes that need to be followed. Table 3.6 outlines the distinct processes that were followed in this research.

Table 3-6: Process for case study analysis

Techniques followed	*Explanation*
Chronologies	Narratives of the events that took place, organised by dates
Coding	Sorting data according to concepts or themes
Clustering	Categorising cases according common characteristics
Matrices	Explaining the interrelationship between identified factors
Decision tree modelling	Grounding a description of real-world decisions and actions coherently by using multiple cases
Pattern matching	Comparing between a predicted and empirically based pattern

Source: Ghauri & Gronhaug (2010).

NVIVO 11 data analysis software was used in line with Table 3.6. NVIVO is a useful piece of data analysis software that supports qualitative research. It is designed to assist the qualitative researcher in organising, analysing and finding insights in unstructured or qualitative data like interviews, open-ended responses and documents.

The first stage of analysis covered narratives which included chronological events and biographical histories of the municipalities and the PMOs under study (Ghauri & Gronhaug, 2010). Then data collected in the interviews was codified and categorised into clusters according to common characteristics. Each research objective was then converted into a theme

and linked to the categorised groups or patterns, in order to assess whether the objectives are achieved. The inferential task eventually involved an attempt to relate or link the theoretical or conceptual framework, which may have or may have not predicted the same pattern.

As an example, a single instance could be identified where the results were studied and examined for specific meanings, in relation to each case and were compared to the outcomes of the other cases under study. (This enabled the researcher to model a PMO framework from each case, as well as a final conceptual PMO framework incorporating the results of all the three cases see Figure 3.2). Then identification of patterns where the data and their interpretations were scrutinised for underlying themes and other patterns that characterise the case more broadly, were followed by synthesis and generalisation. This is an overall portrait of how each case is constructed and conclusions were drawn that may have had implications beyond the specific context of the case being studied.

Also, a within-case analysis of each case, including themes within the cases were conducted, followed by a thematic analysis across the cases, called a cross case analysis. Within-case analysis typically involves detailed case study write-ups, with the intention of becoming familiar with each case as a stand-alone entity. This process allows patterns of each case to emerge before researcher can push to generalise patterns across cases.

Figure 3.2 shows the link between the aim of the research, the data collection and the analysis. It also links the literature review, data collection and analysis with the entire process of model formulation. The literature review as a point of departure, has assisted in the eventual construction of the conceptual framework. This was then followed by data collection from the three municipalities and the subsequent data analysis using NVIVO 11. The analysed data was then synthesised to enable model formulation. This process assisted greatly to address the concerns the validity of the results. The next section deals with validity and reliability and details.
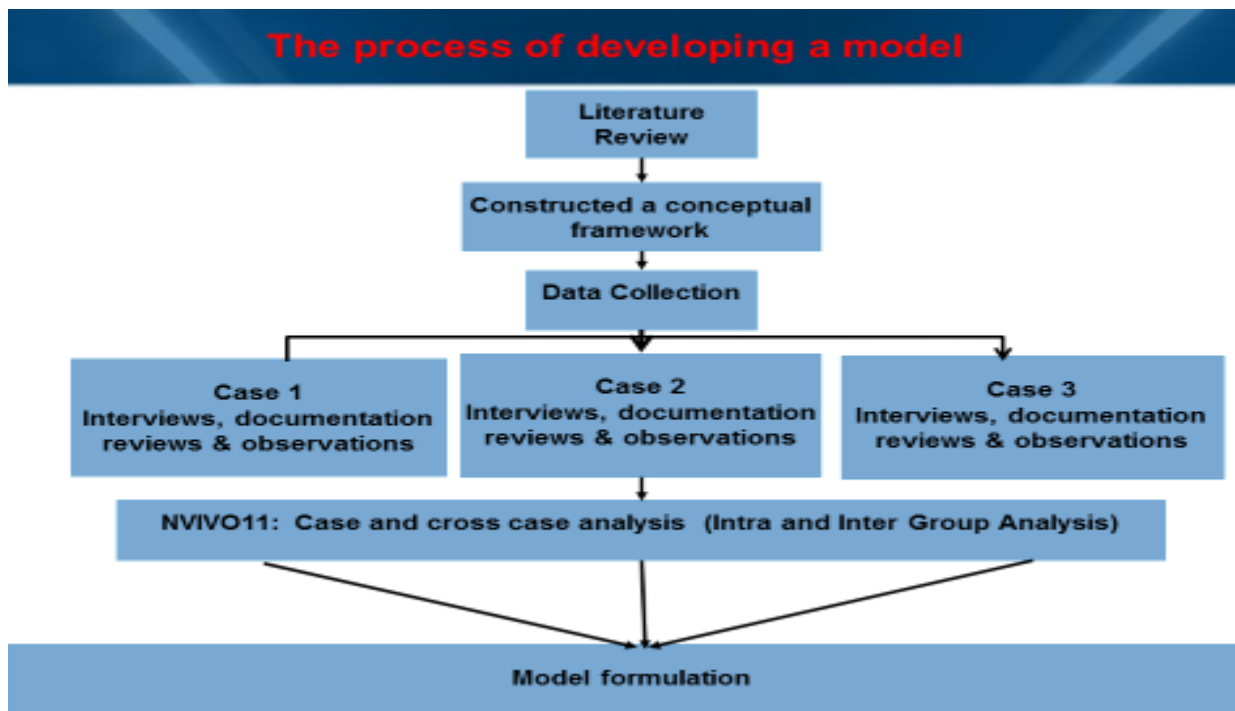
Figure 3-2: The process of developing a model

3.5.Reliability and Validity

Reliability is the consistency with which a measuring instrument performs. It describes how far a particular test, procedure or tool such as questionnaire a similar set of results will be produced in different circumstances, assuming nothing else has changed (Roberts, Priest & Traynor, 2006). Validity looks at the end result of measurement. Validity on the other hand is subtler concept, which refers to the closeness of what the researcher believes they are measuring compared to what is intended to be measured (Roberts *et al*, 2006). Miles & Huberman (1994) articulate that meanings emerging from data have to be tested for their plausibility, sturdiness and their conformability – that is, their validity.

The question reliability asks is: if the study were repeated, would the same results arise? And the question validity asks is: are we really measuring what we think we are measuring?

However, it must be noted that when it comes to qualitative research, issues of instrument validity and reliability depend largely on the skills of the researcher (Miles & Huberman, 1994).

The external validity of research is mainly concerned with the Generalisability of the conclusions reached and often asks the question: can the conclusions drawn from a sample be generalised for other cases (Leedy, 1997). According to Yin (2003), case studies are

generalizable to theoretical propositions and not populations or universes. In doing a case study, the goal was to expand and generalise theories and not to enumerate frequencies.

In this study, the reliability question was addressed through triangulation, where several methods such as interviews, observation and documents reviews were used. The open ended perspective aligns with the notion of data triangulation, by allowing participants in the research to assist the researcher with the data collection. Engaging these multiple methods (namely interviews, observations and document reviews) will lead to more valid, reliable and diverse construction of realities (Golafshani, 2003).

Validity on the other side is addressed by means of multiple cases, instead of just one case in order to confirm the results. For example, can the causal relationship observed in one municipality be replicated in another municipality? This question could be addressed by multiple cases with varying settings and with the research then analysing for a causal relationship within each setting or municipality. The data was validated by the converging of results to a common outcome.

3.6. Limitations and Ethical issues

This section highlights briefly limitations to the study and the ethical considerations that may be encountered during the study.

3.6.1. Limitations to the study

Some of the key limitations to the study were found to be
  i.   Time constraints and availability of participants
  ii. Selected municipalities were the ones willing to participate.
  iii. Even though the strategy (case study) used is deeper and involving, it is not broad enough and therefore the three selected municipalities may not represent all the 287 municipalities in SA. However most municipalities are configured in a similar manner and to a larger extent, these findings and recommendations may apply to most municipalities.
  iv. Most of the literature is focused on private sector organisations when compared to the public sector.

v. The project management maturity level of the municipalities and the participants in particular may have had a limiting effect on the study, seeing that the response and the information gathered may have been limited.

3.6.2. Ethical issues

As part of the ethical considerations, a cover letter with a clearly defined purpose and a set of characteristics as stipulated below was attached to both questionnaire and interview instruments. The letter:

   i.   Introduced the researcher to the participants
  ii.   Explained why and how the respondents were selected. Gave them comfort that they are not being targeted and that the researcher has no ulterior motives.
 iii.   Indicate that the respondents were asked to provide information.
  iv.   Describe the purpose of the study to place the respondent in the right frame of mind as they complete the questionnaire.
   v.   Be courteous
  vi.   Ask for compliance with the instructions
 vii.   Indicate the amount of time that may be needed for the completion of the questionnaire.
viii.   Guarantee anonymity stipulating that neither the respondent nor the enterprise name is required.
  ix.   include a call to action – (for example, email back the questionnaire)

Appendix one shows the letter.

The most important thing to do was to assure the respondents that they will be kept anonymous. This is done to protect them from any prejudices that may result thereof. All communication with respondents was treated in the strictest manner and participation and/or non- participation or their responses will not be revealed to any external parties.

3.7.Pilot study

A pilot test was conducted by interviewing a few people that are not necessarily part of the sample, to see whether they have difficulty in understanding any items (Leedy & Ormrod, 2005). The same instrument that was used in the main study were used in the pilot study. The pilot study targeted the positions shown in Table 3.8 from Polokwane municipality. Table 3.8

shows the number of respondents and their positions and the data collection method that was used during the pilot study. A total of two respondents were piloted during this study. This pilot testing provided a check on reliability and enabled some refinement.

Table 3-7: Research respondents for the pilot study

Classification	Research respondents	Number of respondents	Method of data collection
Internal customer	Planning Manager	1	Interview
Internal customer	Technical Director	1	Interview
Total		**2**	

3.8.Chapter Summary

This chapter covered the detailed research process that was followed in this research. It also discusses selected research strategies, data collection methods, sampling methods and the research instruments and how they are designed in detail. A detailed approach and conditions under which various stages of investigation are carried out, from the development of initial contacts, choice of cases, questionnaires and interviews and the pilot study have all been outlined in this chapter. The use of the multiple case study approach and surveys was also justified. The limitations and ethical considerations have also been covered.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1. Introduction

This chapter presents an analysis of data and presents a discussion of the findings arising from an investigation into the PMOs, in South African Municipalities. The findings are guided by the desire to achieve the aim and objectives stated in chapter one, Section 1.7.

The chapter is divided into seven sections with the next section presenting the profile of the respondents. This is followed by the positioning and the structural organisation of the PMOs in the three municipalities, the factors considered when establishing PMOs in South African Municipalities, adequacy of the PMOs in carrying out their mandate, patterns of municipal dependent factors and the last section presents the chapter summary.

4.2. The profile of respondents who participated in the study interviews

The Table 4.1 presents the profile of respondents that took part in the interviews in the selected municipalities. The nature of the questions asked were directly linked to the objectives (see Table 3.5. and appendices two; three; four and five). Table 4.1 also shows the attributes such as whether the participants that took part in the process of establishing the PMOs in their municipalities, in addition to gauging the participants' experience in their current municipalities and in the municipal environment in general. Each of the attributes is discussed below in accordance with each municipality and also in accordance with the provincial and national government participants.

4.2.1. Mogalakwena Municipality

Only the PMO manager has participated in the PMO establishment process. It was expected that at least the municipal manager would have also participated in the establishment process, but this was not the case in all the three municipalities. Despite the fact that only the PMO manager participated in the establishment process, the information related to the establishment process that was uncovered during the interview was significant and together with information gathered through additional documents received from the PMO manager, the consolidated information provided a glaring insight into the establishment processes followed.

As shown in the table, the PMO manager has 11 years of experience in both the current municipality and the municipal environment. This is an indication that the PMO manager has sufficient experience in the municipal PMO environment and it could be inferred that he possessed sufficient knowledge as could be expected and was able to answer questions adequately. The municipal manager, like in the other three municipalities, has only 1.5 years of experience in the Mogalakwena municipality. However, because he had 10 years of overall experience in the municipal environment, he had the requisite knowledge in respect of the issues discussed and was able to adequately respond to the questions asked, which mostly backed up the information acquired from the PMO manager.

Other participants include external service providers and community leaders and/or councillors. In each municipality, three external services providers and three community leaders (see Section 3.4.2.) were interviewed in order to seek more (supplementary) information. Even though none of these were expected to have participated in the establishment process, the information that was sought was mainly around objective two and three (see appendices three and five). The average time spent in the municipal environment is four years. This is sufficient time to enable the participants to discern with adequate satisfaction issues relating to the PMOs fitness for purpose and if there are any municipal dependent factors that may dictate the type of PMO that is suitable for municipalities.

4.2.2. Polokwane Municipality

In the Polokwane municipality, it is also only the PMO manager that participated in the PMO establishment process. However, the Polokwane municipality through its PMO manager contributed a wealth of information regarding the establishment and operation of the PMO.

The PMO manager has two years of experience with the Polokwane municipality, but he does however have 10 years of experience working in the municipal environment. He has therefore gained sufficient experience in the establishment and operation of the PMO from other municipalities. The municipal manager has less than a year in this municipality but has eight years in the municipal environment. Other participants can be averaged at four years of experience. In terms of municipal environment exposure, the participants in this municipality had sufficient exposure, experience and knowledge to positively contribute to the research.

4.2.3. Capricorn Municipality

Just like in other municipalities, only the PMO manager has participated in the process of establishing the PMO. The municipal manager however, still displayed satisfying level of knowledge in relation to the establishment and operational process of the PMO.

The trend which can be translated into an inference is that, there is a high employee turnover rate and in particular relating to the municipal managers (or top management) in municipalities. The municipal manager in Capricorn municipality also has only spent one year in this municipality, even though he carries with him 13 years of experience in the municipal environment. The PMO manager has around seven years of overall experience in the municipal environment and this put together with that of the municipal manager has resulted into a significant amount of experience that enabled them to contribute satisfactorily to this research.

Other participants were mainly external stakeholders such as external service providers and community leaders. The combined average exposure to municipalities amounts to four years which can be deemed sufficient for the stakeholder to have acquired knowledge of municipal operations.

4.2.4. National and Provincial Government

The two provincial MIG managers have participated in the formation or establishment of a PMO and the national MIG manager has not. The exposure of the provincial MIG managers in the establishment process has contributed significantly to this research.

All the participants in this category have the requisite exposure to the municipal environment averaging nine years. This experience helped immensely to solicit knowledge and information that assisted in the research.

4.2.5. Summary of the profile of respondents

Table 4.1 summarises the profiles of respondents in the three municipalities and the participants from the national and the provincial governments. The PMO managers, municipal managers and the national/provincial municipal infrastructure grant (MIG) managers were asked the same set of questions, with the exception that the national and provincial MIG managers were not asked questions pertaining to objective three, which seeks to analyse patterns of municipal

dependant factors that may dictate the type of PMO that is suitable for the municipalities. This is due to fact that the national and provincial MIG Managers do not necessarily work directly in the municipal environment and may not be privy to these factors.

Table 4-1: Profile of respondents in the three municipalities

municipality	Respondents	Participated in the PMO establishment process of any municipality	Years of experience in the current Municipality	Years of experience in the municipal environment
Mogalakwena	PMO manager	yes	11	11
	Municipal manager	no	1.5	10
	1st External service provider	no	10	4
	2nd External service provider	no	1	5
	3rd External service provider	no	3	3
	1st Community leader/councillor	no	5	5
	2nd Community leader/councillor	no	5	5
	3rd Community leader/councillor	no	3	3
Polokwane	PMO manager	yes	2	10
	Municipal manager	no	0.7	8
	1st External service provider	no	5	4
	2nd External service provider	no	7	9
	3rd External service provider	no	2	3
	1st Community leader/councillor	no	4	4
	2nd Community leader/councillor	no	6	6
	3rd Community leader/councillor	no	2	2
Capricorn	PMO manager	yes	6	7
	Municipal manager	no	1	13
	1st External service provider	no	3	4
	2nd External service provider	no	5	10
	3rd External service provider	no	1	4
	1st Community leader	no	5	5
	2nd Community leader/councillor	no	5	5
	3rd Community leader/councillor	no	4	4
Provincial government	Provincial MIG manager	yes	Not applicable	12
	Provincial MIG Senior Manager	Yes	Not applicable	8
	National MIG manager	no	Not applicable	7

4.3.Position and structural organisation of the PMOs in three municipalities

The documentation reviews for the three municipalities and the findings from the interviews show some interesting differences amongst the municipalities, as well as apparent similarities. Each PMO (referred to in the municipalities as PMUs) is discussed in terms of its position within the municipalities, including an overview to determine how each municipality is structured and operates. The link between the each municipality's PMO and the provincial office is shown in a similar manner by means of a dotted line between the provincial MIG office and the municipal manager.

4.3.1. The PMO in Mogalakwena Municipality

Mogalakwena municipality consists of eight executive directorates who report to the municipal manager as shown in Figure 4.1. The directorates are corporate support, electrical, technical services, community development, developmental services, traffic & emergency services and finance.

The structure for the technical services directorate is further unpacked to indicate the position of the PMO (shown as PMO/PMU on the structure) within the structure. Interestingly, the PMO has been split into a special projects unit or design division (see the new unit called special projects in the structure). Apart from the special projects division, the municipality also established another unit called the infrastructure planning unit (IPU) Illustrated with a dotted line. It is shown with a dotted line simply because the municipality do not reflect this unit in their organisational structure. The unit (IPU) has the overall responsibility, in conjunction with the other relevant departments regarding the municipality, which includes managing the capital projects, in addition to the MIG on an on-going basis. It is responsible for managing the entire project cycle which includes aspects such as scoping, design/planning, and implementation of projects which are funded through various sources such as the MIG and others.
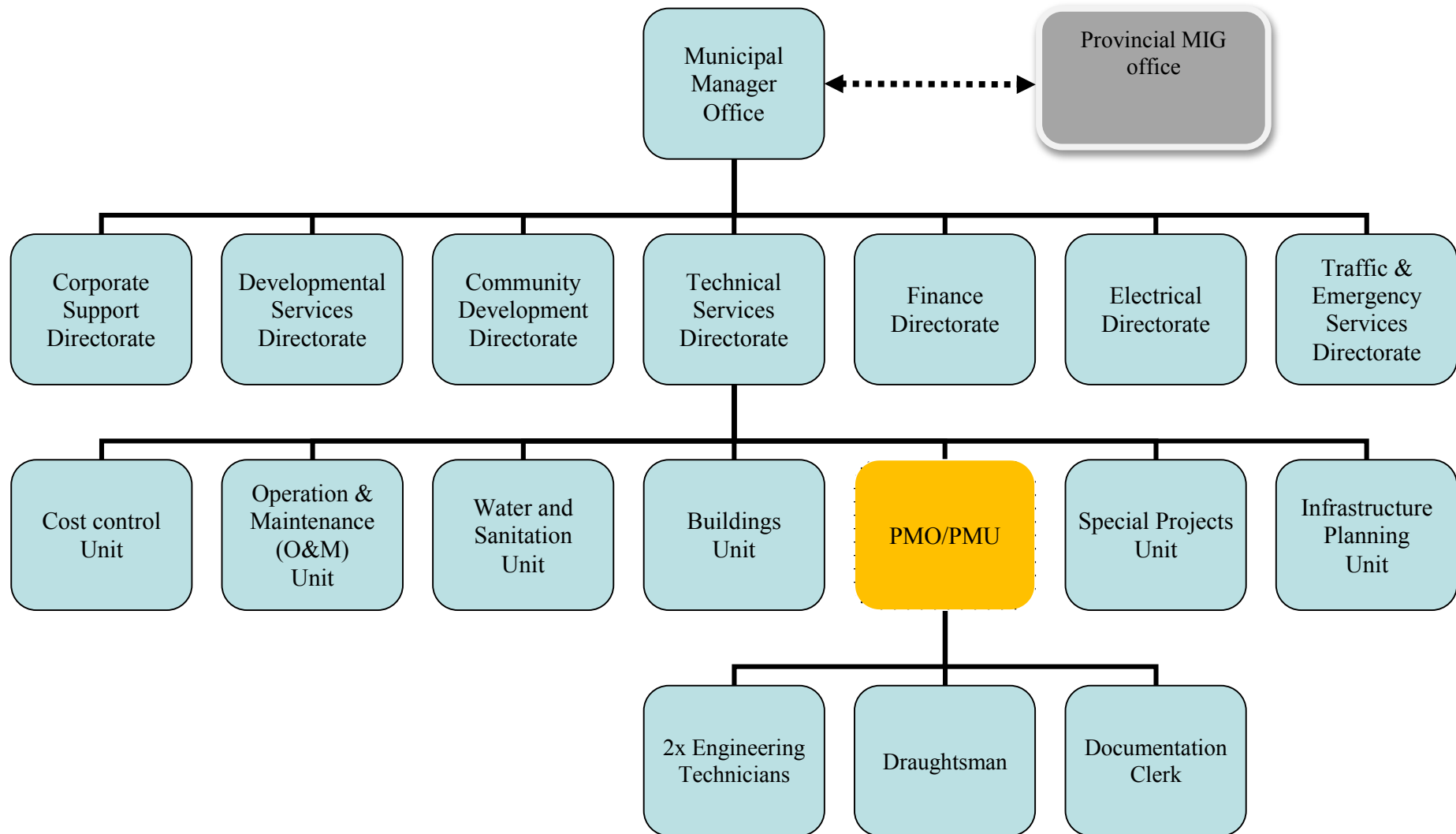
Figure 4-1: Mogalakwena Municipality's organisational structure
Source: Mogalakwena Municipality (2014)

The PMO manager (also referred to as project implementation manager) reports to the manager of the technical directorate, he is responsible for the overall management of the PMO division, management of the productivity / performance and personnel of the unit, preparation and management of the capital and operational budgets of the unit, contract management of projects, quality control and monitoring of projects. Responsibilities also include compiling weekly, monthly, quarterly and annual reports, working schedules and payments certificates. The requirements for this position is a national diploma in civil engineering and project management as the requisite qualification. Besides the PMO Manager, the unit has two engineering technicians, a draughtsman and documentation clerk. The main duties of the engineering technicians are to provide technical support to the PMO manager, by becoming part of the team members of the water & sanitation unit, roads & storm water unit, infrastructure planning unit and special projects unit. They are also responsible for quality control and monitoring projects and compiling reports, working schedules, and payment certificates. There is also draughtsman whose main duty is the preparation of sketches, designs, layouts and final drawings of the infrastructure projects. He is therefore expected to assist the PMO manager by producing drawings for the team members for the water & sanitation unit, roads & storm water unit, infrastructure planning unit and special projects unit. With this team, the unit obviously may not be able to perform any other project support work such as cost control. It is also evident from the structure that the cost control support is conducted outside the unit. Any unit that takes compliance seriously will have cost control support systems in place otherwise such a unit cannot be held accountable for any financial mismanagement and noncompliance issues.

Just like the PMO manager, the IPU manager (also called the lead engineer) also reports to the manager of the technical directorate and has the overall responsibility of making sure that the PMO delivers its mandates in terms of the division's short, medium, and long term planning for the capital projects. He is also responsible for the alignment of the projects with the municipal imperatives such as the IDP and compliance with all the conditions of the funding organisations. This includes completing activities such as the registration of projects in the case of the MIG, formulation of implementation plans, and funding proposals. He is expected to manage the entire project life cycle in terms of planning, appointment of consultants and contractors, design, contract management and supervision, cash flow management, quality assurance, reporting, and expenditure. Compliance with all the necessary municipal reporting systems and ensuring timely expenditure of the allocated budgets is one of his key performance indicators. The minimum requirements for this position is a B.Sc. degree in civil engineering

or equivalent with a minimum of 20 years of combined experience in design, site supervision, contract administration, project management, and planning of civil engineering projects. Furthermore they must possess extensive experience on a range of projects including water, roads, storm water, sewer, water and waste water treatment works and be registered with the Engineering Council of South Africa (ECSA) as a professional engineer or equivalent.

The other unit within the technical services directorate is called the special projects unit (SPU) which focuses on the Regional Bulk Infrastructure Grant (RBIG). The RBIG is the grant from the department of water and sanitation and focuses on bulk regional water schemes only. This unit (SPU) is also called the design office and is managed by the coordinating agent for infrastructure projects (also referred to as the head of the design office). Even though it was debated and resolved that the special projects unit should report to the office of the municipal manager, it remains in the office of the technical director as reflected on the organogram, but, practically the unit is reporting to the office of the municipal manager. This is as a result of the unit being involved in strategic issues, such as fundraising even though this is not explicitly mentioned as the mandate of the unit.

4.3.2. The PMO in Polokwane Municipality

Figure 4.2 shows the administrative organisational structure of Polokwane municipality. The structure shows eight executive directorates that report directly to the municipal manager, namely; engineering services, transportation services, planning and economic development, community services, corporate & shared services, budget and treasury, community development and strategic planning monitoring & evaluation. Each directorate is headed by a director and consists of strategic business units headed by managers.
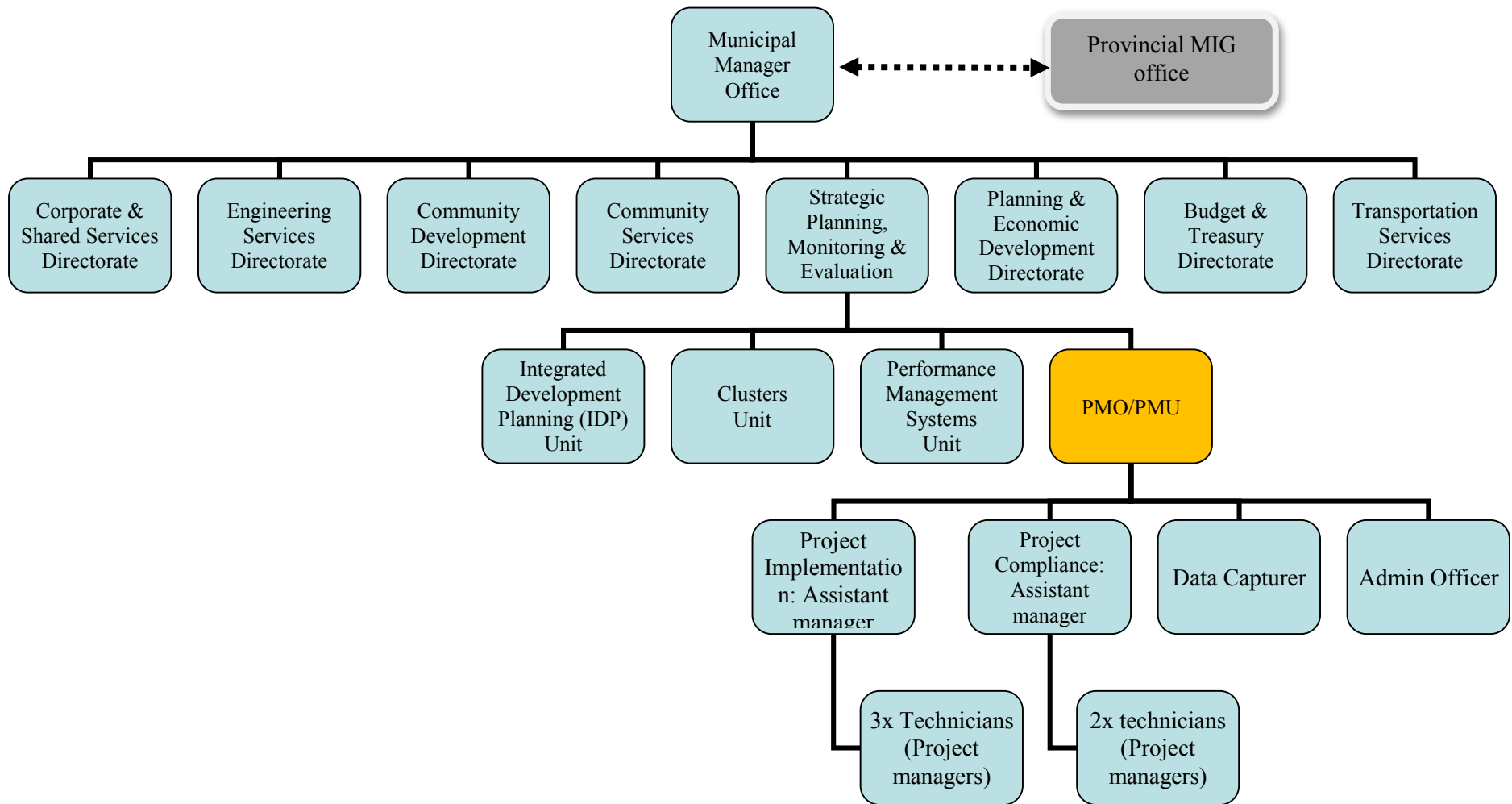
Figure 4-2: Polokwane Municipality's organisational structure
Source: Polokwane Municipality (2014)

The strategic planning monitoring and evaluation directorate's (SPME) mandate is to promote integrated planning and inculcate a culture of performance, monitoring and evaluation within the municipality. The directorate is responsible for amongst others, the management of the integrated development planning process, decentralisation of municipal services and guiding the institution in terms of developing, managing and implementing an organisational performance management system.

Unlike most municipalities, Polokwane's technical directorate, also known as the engineering services directorate, is not responsible for all capital infrastructure projects, every directorate within the municipality is practically implementing its own capital infrastructure projects.
This is because Polokwane municipality does not only work with the MIG but is allocated various other grants that are in other directorates such as community development and community services. For example, there are grants such as the Integrated National Electrification Programme (INEP) in the engineering services directorate, the Development Bank of Southern Africa loan (DBSA LOAN) in the community development directorate, the Neighbourhood Development Partnership Grant (NDPG) and Community Risk Reduction (CRR) in the community services directorate.

Interestingly, the PMO (shown as PMO/PMU) is one of the strategic business units (SBU) positioned in the strategic planning, monitoring & evaluation directorate (SPME). The PMO is staffed with a PMO manager and two assistant managers for project implementation and project compliance. Both the project implementation and monitoring assistants are armed with three and two project managers (technicians) respectively. There are also two additional staff members (data-capturer and administration officer). The PMO manager is responsible for monitoring and evaluating the overall performance of all capital projects, including projects from various other grants. He is also expected to ensure municipal and regional integration of the MIG programme and other non-MIG funded programmes within the framework of the municipality's integrated development plan. All capital projects are expected to meet the overall planning objectives and specific key performance indicators, as determined by the municipality, national and provincial senior MIG manager. The qualification requirements for the PMO Manager are similar to those expressed in the Mogalakwena municipality as stated in the preceding section. Even though there are five technicians which are also referred to as project managers, in this unit alone, each of the directorates has its own project managers

responsible for implementing the capital project in that directorate. The project managers in the PMO unit mainly play a monitoring role.

Some of the key roles of the unit are:

i) Monitoring of capital project implementation

ii) Management of consultants and contractors

iii) Monitoring compliance in terms of available legislations related to projects implementation

iv) Project impact assessment study

v) Registration of all projects funded by sector departments (Expanded Public Works Programme (EPWP) and MIG)

vi) Monitoring and evaluation of MIG funded projects and expanded public works programme (EPWP) projects

vii) Facilitation of provision leadership programmes and local labour training during project implementation

4.3.3. The PMO in Capricorn Municipality

Capricorn district municipality has six executive directorates that report to the municipal manager, as shown in Figure 4.3. They are infrastructures services, community services, corporate services, development planning and environmental management services (DPEMS), strategic executive management services and finance. This structure is the leanest compared to the other two municipalities. The PMO (Shown as PMO/PMU) is within the infrastructure services directorate. Other municipalities call this directorate technical Services or engineering services.
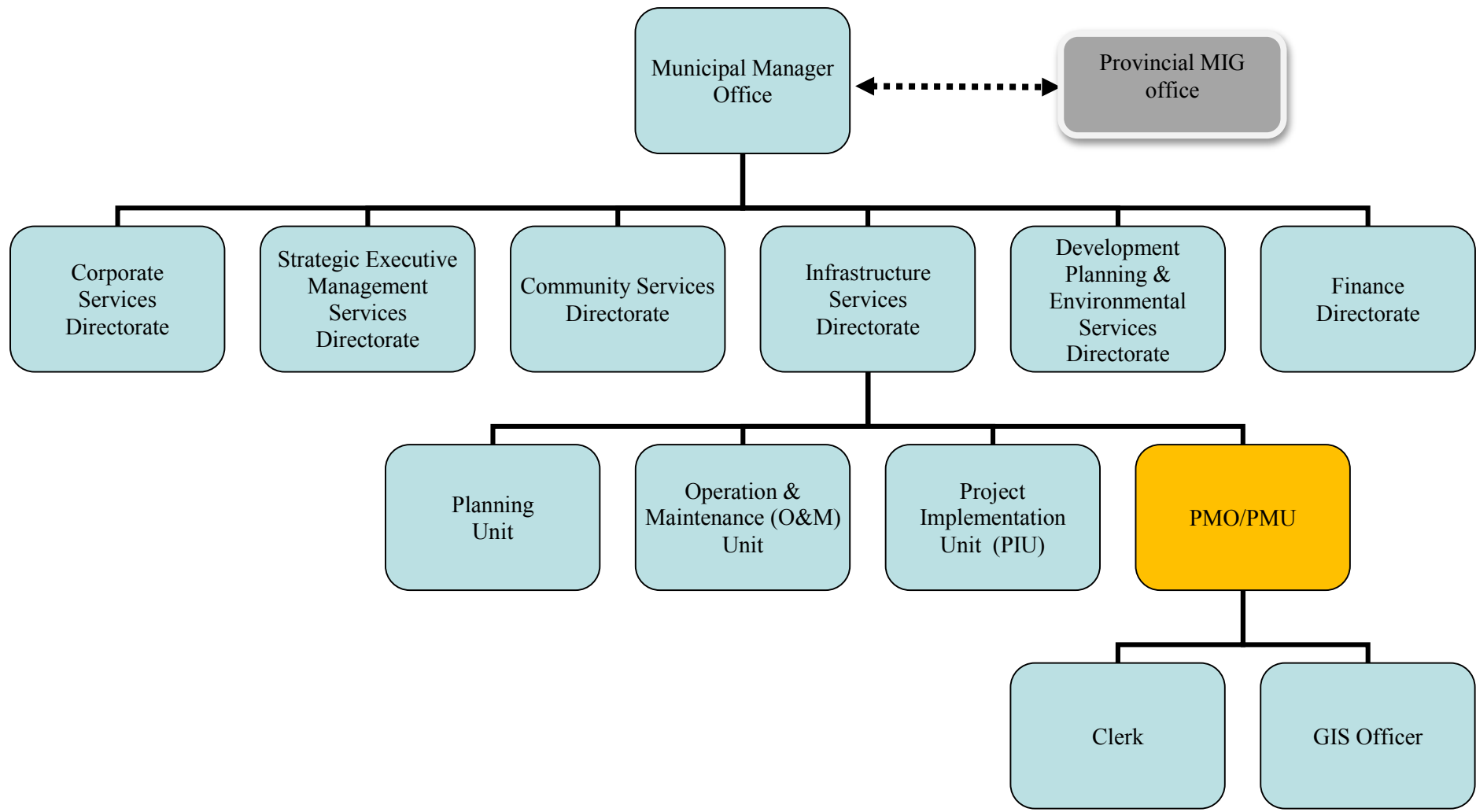
Figure 4-3: Capricorn Municipality's organisational structure
Source: Capricorn Municipality (2015)

The PMO is staffed with only three members, namely; the PMO manager, a clerk and the geographic information system (GIS) officer. The clerk is mainly responsible for processing all documentation such as payment certificates for service providers and compiling reports, whilst the GIS officer is responsible for gathering GIS data for the projects. The GIS data is useful for identifying project areas and for spatial analysis and visualisation. Although the function of the GIS is based at the provincial offices, the Capricorn municipality intends to incorporate the MIG related projects into the municipal systems. Thus, the GIS is recognised for the important role that it plays in connecting and manipulating different data sources.

The PMO manager's role in the Capricorn municipality is less intensive compared to those of other municipalities. This is simply because the implementation and the planning roles have their own units separate from the PMO as shown in Figure 4.3. So, the planning, implementation and monitoring which are supposed to be part of the PMO functions are done by other specific units, namely the planning unit and the implementation unit. This according to the Capricorn PMO manager means that, because there is planning manager, PMO manager, implementation manager and O&M manager all at the same level, each of these managers have to go through the executive manager to get information from the other manager and they lament this process as it makes project implementation cumbersome and inefficient. Besides, the work that a PMO does, solely depends on what is happening on the other three units. When asked how the structure of the unit impacts on the unit's performance, the Capricorn PMO manager proclaimed that, a very poorly structured unit like theirs will definitely have negative impact on the performance of the unit. She cited an example where the unit doesn't have a say or input on the designs of the projects. The unit just reports on what has been designed, because the responsible units for the designs do not fall within the PMO. The unit has basically been reduced to an administration unit performing only an administration function, The PMO does not even play a supporting role. Both national and provincial MIG staff have confirmed what has been indicated by Van der Waldt (2009) that in this case, the best practice would be to decentralise this function to local municipalities. According to Van der Waldt (2009) the name "Project Management Unit" in the case of Capricorn municipality would be misleading and should rather be called "Project Reporting Unit" since the unit is merely reporting on projects and are seldom involved in the actual project management of municipal projects.

The qualification requirements for the PMO Manager are however also similar to those expressed in the Mogalakwena municipality as stated in Section 4.3.1, which is a minimum of national diploma in civil engineering and project management qualification.

4.3.4. The comparison of the structural organisation of the three municipalities

Table 4.2 shows a summary comparing the structural organisations of the three municipalities. The following factors were found to be key factors or drivers of the organisational structure in all the three municipalities.

Table 4-2: Comparison of organisational structure of the three municipalities

Municipalities / Key factors	Mogalakwena	Polokwane	Capricorn
Location of the PMO	Technical services	Strategic planning, monitoring & evaluation	Infrastructure services
Staffing requirements	In line with the MIG guideline though not all positions are occupied	In line with MIG requirements and only very few positions not filled	Not in line with the guideline document.
Qualifications and training needs	Qualifications of the staff are In line with MIG guideline document and business plan Training needs outlined in the business plan	Qualifications of the staff are In line with MIG guideline document and business plan Training needs outlined in the business plan	Qualification of the available staff in line with the MIG guideline document No business plan available or provided.

4.3.4.1.Location of the PMO

In terms of literature and the developed conceptual framework (see Figure 2.13), the location or the position of the PMO within the broader municipal structure is influenced by the operational, tactical and strategic objectives of the organisation and it also depends on the organisational maturity level. Looking into the three municipalities, Polokwane municipality would come out better compared to the other two in terms of both the Project Management Maturity Model (PMMM) and the Capability Maturity Model (CMM). The PMMM and CMM

are very similar models and are discussed in detail in Section 2.4.1.3. Polokwane municipality with all its resources and level of project management endeavours to integrate all related processes with a singular methodology the centre of which is the project management philosophy, which would translate to it being more efficient than the other two municipalities. That being said, Polokwane municipality is the only municipality whose PMO is located outside the technical directorate (in the strategic planning monitoring and evaluation directorate (SPME)) and is responsible for all other capital projects other than MIG related projects. The rationale behind the Polokwane structure is somewhat understandable, as all other directorates may have capital projects that need to be implemented and it would be somewhat cumbersome if the unit was located in the technical directorate which also by the way, requires the services of the PMO. So the strategic objectives (mandate) of the municipality (Polokwane) influences the positioning of the PMO. The (Polokwane) municipality is the most involved of all the other two municipalities judging by its mandate, activities and responsibilities.

In both Mogalakwena and Capricorn municipalities, the PMOs are positioned within the technical directorates (called infrastructure services directorate in Capricorn municipality). Both their mandates are limited to dealing with MIG capital. For example, Capricorn's PMO seems to mainly focus on MIG's payments certificates and compliance around payments certificates. Crucial aspects of project implementation such as, contracts administration, risk monitoring and administration, health and safety monitoring and administration are not undertaken. These are some of the aspects that would normally be expected from a PMO. The unit is only concerned with making sure that the (MIG) projects are registered with the MIG provincial and national offices that they report on the project's expenses and ensure that they are complying with the deadlines and provide information to the funders. This clearly shows some correlation between the location or position of the PMO and the mandate (which is translated into the activities) of the organisation. This inference confirms the statement mentioned earlier that mandate influences the positioning of the PMO within the organisation.

According to MIG guideline document, a typical structure of a municipality with a PMO envisages that the PMO should be linked to the technical directorate (though the technical directorate is expected to provide project oversight with respect to operational aspects) and it also shows the planning unit as a separate unit from the PMO (see Figure 1.5 in Section 1.4.3). However, none of the above municipalities adhered to this typical structure.

4.3.4.2.Staffing requirements

As confirmed by Van der Waldt (2009), as far as the staff complement of PMOs is concerned, there is largely commonality amongst municipalities and there is a significant correlation between actual practices and the MIG Guidelines. The positions are outlined in the guideline document and the job descriptions are clearly outlined in the business plans for establishing these PMOs (see Section 1.4.3). Both the Mogalakwena and Polokwane municipalities demonstrated the commonalities between what is happening in their municipalities and what is outlined in the guideline document and their respective business plans. The Capricorn municipality was not able to produce its business plan for the PMO and its staffing was completely out of line from the guideline document.

4.3.4.3.Qualifications and training needs

The qualifications of key staff are in line with the MIG guideline document in all the three municipalities. And these qualifications are also reflected in the business plan for the PMOs. The business plans indicates that, as per the detailed staff requirements, staff with the appropriate qualifications will be appointed either by internal transfers / secondments, where the capacity is available or externally for the vacancies indicated under PMO manager, project manager, administrator and data capturing services.

Business plans also clearly indicate that training needs will be identified with time and wherever the need may be, the training requirement will be addressed either through the municipality, provincial or national departments. Training will either be related to management, technical in nature or be legal in nature. Training for all the technical staff will be arranged with the Construction Education and Training Authority (CETA) to ensure that all the supervisors and managers conform to the requirements as stipulated in the guideline document.

4.4.Factors considered in establishing PMOs in the three municipalities

This section unpacks and discusses the factors considered in the establishment of the PMOs in the three municipalities. It particularly looks into the process that the municipalities followed in establishing their PMOs.

4.4.1. Process of establishing PMOs

It was confirmed in all municipalities that PMOs used to be outsourced due to lack of capacity within the municipalities. In recent times most municipalities have adopted an in-house PMO approach. All municipalities agree that there are a clear set of guidelines that were provided by the Ministry of Local Government to assist municipalities in the establishment and operationalisation of the PMOs in municipalities. Van der Waldt (2009) confirms in his study that, the majority of municipalities (67%) established their PMOs during the 2004/05 financial year, using the MIG guidelines document and best-practice examples from other municipalities. The guideline emphasises that if any municipality does not have the capacity to implement capital or efficiently utilise any grant, such municipality should consider the PMO through shared services model from the district municipal level. The shared services model allows the municipality with no capacity to utilise the PMO of another municipality, in particular a district municipality (Ministry of Local Government, 2007). These guidelines however were not necessarily a fixed set of principles for establishing PMOs.

4.4.1.1.Establishment of PMO in Mogalakwena Municipality

In the case of Mogalakwena municipality, the PMO was outsourced until 2014. In 2014, the municipality decided to have an in house PMO and began with the structural set up and recruitment process to get the unit running. This was after the municipality found that the outsourced unit was understaffed and dysfunctional. The municipality noted that the outsourced unit may have been deliberately understaffed with poorly trained personnel so that they can maximise their profit. In addition, the municipality claims that the unit was not compliant with the MIG requirements. So the municipality decided to initiate a new process of establishing their own internal unit based on the MIG's PMO establishment guidelines of 2007, (Ministry of Local Government, 2007). Even though the acting Municipal manager confirmed that he was not necessarily part of the establishment team, both he and the provincial MIG manager agreed with the PMO manager on the process followed. They further indicated that

the guideline provides a specific set of parameters such as minimum staffing requirements and the qualifications of the staff to be recruited for establishing PMOs. However, these guidelines do not provide some sort of a framework from which to formulate and establish a PMO structure. They also indicated that the current unit is not fully compliant to the staffing requirements of the MIG guidelines, especially in terms of quantity of the staff members. The Ministry of Local Government (2007) advises that only one suitably qualified PMO manager or an engineer should manage the PMO on a full-time basis in addition to other personnel such as financial personnel, legal personnel, Occupational Health & Safety personnel, IT personnel and Community personnel. The municipality has instead created parallel structures/units to implement special projects and other projects. The common sense is that, if these structures can be amalgamated together, the staffing requirement may be improved significantly.

The responses by all three participants seems to agree to the fact that sufficient effort was not put into the establishment process except to implement the MIG guideline document, which also seems not to be clearly understood by all the participants. At least an assessment or needs analysis or gap analysis has to be conducted as an integral part of the establishment process. This process will address the mandate, positioning and importantly the sizing of the unit in response to the needs and capabilities of the municipality. However, the guideline document lacks the details and little research has been conducted to make it user-friendly

4.4.1.2.Establishment of PMO in Polokwane Municipality

In the Polokwane municipality, the PMO is fully insourced. The PMO manager hinted that the most important thing about establishing a PMO is understanding the project management life cycle. He emphasised that, the municipal project management cycle or MIG project management cycle is slightly different to the conventional cycle, in that it starts from the project identification stage through participation in the Integrated Development Plan (IDP), which makes sure that the projects are in the IDP's plans. Figure 4.4 shows the process in a simplified manner.

As shown in Figure 4.4, the IDP process is a consultative process where the community participates to identify their needs. The needs analysis is then turned into projects to be undertaken. This is done to ensure that the true needs of the communities are being addressed by the identified projects. The community identifies the need for a service and the ward

committee reports to the municipality and the basis for any decision on the infrastructure to be provided is compiled by the municipality in the IDP. The IDP then guides the planning and budgeting the municipality undertakes. Once the project is identified, the project prioritisation and selection process must take place. This is where the MIG conditions and criteria must be taken into account. They include: approved three year capital plans, compliance with the Division Of Revenue Act (DORA), MIG cross-cutting conditions, sector specific conditions, MIG and other funding windows / criteria and finally, cost effective regional level infrastructure solutions involving a number of municipalities.

After the prioritisation and selection, the registration of the project follows. In this process, the Provincial MIG Management Unit (PMMU) will extract the project registration form from the Municipal Information Systems (MIS), evaluate and verify for compliance with the MIG's conditions, three-year capital plan, as well as targets set for key performance indicators (KPIs). If the project is in compliance with the MIG criteria, the PMMU will sign the project registration form off on the MIS.

Then the next stage is called the pre-implementation stage where the engineering consultants are appointed to prepare designs and tender documents and contractors are procured. It concerns the specifications, designs, tender documents which are packaged together. Then the last stage, the implementation phase is entered into. This is a stage where contractors are procured, and construction begins. This will be followed by the completion of the construction and then undertaking the operations and maintenance. There are project managers within the unit that are responsible for all these processes.

So according to the PMO manager, the most important thing when establishing the PMO is to make sure that this cycle as shown in Figure 4.4 fits in very well within the PMOs set up. For him, the MIG project management cycle is an adequate guide for PMO formulation and does not need any further form of framework to guide the process. This assertion is ill informed as some sort of framework forms the cornerstone of an efficient PMO. The assessment process should be guided by this framework. However, the assessment process should be made to align with the MIG project management cycle. The other important thing is to make sure that the relationship with provincial MIG office is smooth, because the provincial MIG office is the administrator of MIG and it is there to provide support to the municipalities. The PMO manager also indicated that, during establishing the PMO, it should be borne in mind that the created

unit should be able to manage the consultants adequately. So the capacity issue cannot be overlooked. This would mean that the amount of projects to be implemented and the consultants registered to those projects should be commensurate to the capacity of the PMO. Nevertheless, he conceded that there is still a gap to be closed in respect of these aspects in their municipality. The acting municipal manager confirmed that he was still familiarising himself with the municipality's processes and the PMO in particular. He hinted that he trusted the PMO manager and he is confident that the PMO manager understands the PMO processes.

Figure 4.4 shows a summary of the MIG project management cycle, as described by the Polokwane municipality's PMO manager above. It is basically a more detailed description of the municipal project cycle presented in Figure 1.6. This he argues should form an integral part of PMO establishment and operationalization The IDP process, three year capital plan, MIG project registration and project implantation planning are regarded as major milestones in the cycle. The operations and maintenance is an ongoing process after the project is completed. The strategy and objectives, need analysis, conceptualisation and list of potential projects are essentially part of the feasibility studies which aid the development of specifications, providing a list of feasible projects, helping to prioritise projects and source funding. The implementation phase is when a municipal infrastructure project has been approved and can proceed to be implemented. This phase includes all the steps to design the project, put out tenders, including construction and commissioning.

The main purpose of the implementation phase is to translate the project business plan into the municipal infrastructure. This takes place in the 'project cycle' which comprises the design, tender and construction phases and culminates in commissioning. It is crucial to note that whilst the operation and maintenance is part of the cycle and therefore expected to be implemented from within the PMO, this is not necessarily the case as the PMO manager has been alluded to, but the PMO manager insists it should be part of the project cycle. He clarified that the PMO only participates in the operations and planning, but it is not the unit's responsibility. He said that once the project is completed the municipality must ensure that adequate provision is made in the operations and maintenance budget to operate and maintain the infrastructure effectively, but this is not necessarily the responsibility of the unit.
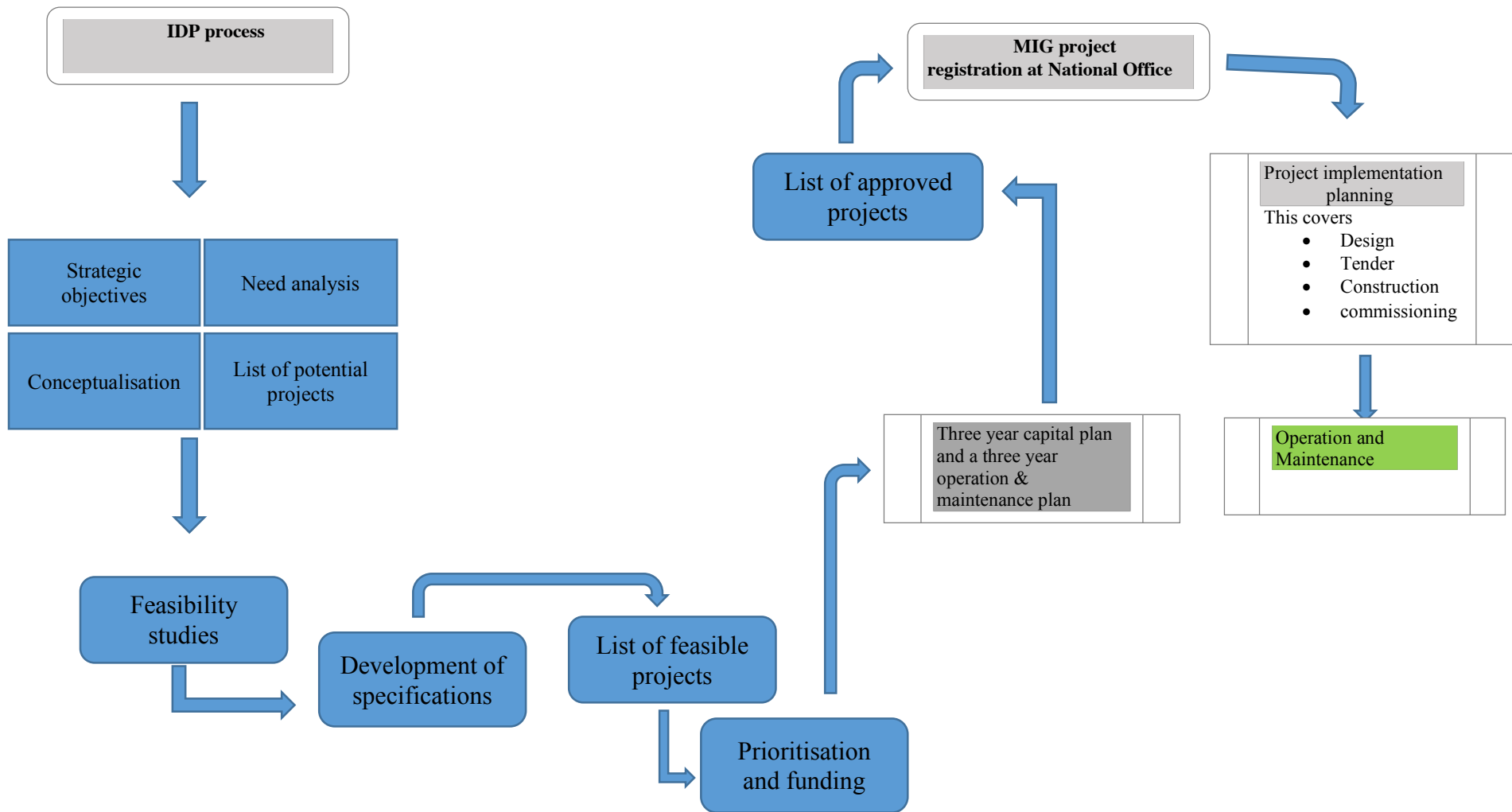
Figure 4-4: MIG project management cycle

4.4.1.3.Establishment of PMO in Capricorn Municipality

In the Capricorn municipality the PMO is also fully insourced. The municipal manager clarified that she was not directly involved in the establishment process. However she participated in the decision making process that affected and shaped what is now the PMO in the Capricorn municipality. In addition, her understanding was within the guidelines as provided by the MIG PMO processes.

The PMO manager on the other side shared some more valuable information. She indicated that she was involved in the PMO establishment process as the project technician in this same municipality and later became the PMO manager. Besides, working in the PMO environment where she later became manager, she worked as the director of municipal infrastructure in the Mpumalanga provincial government's department of local government and housing. Seeing as she was responsible for the PMOs in the Mpumalanga province, this position enabled her to engage directly and experience PMO related issues from the perspective of the provincial department.

In her response on the details of the establishment process the PMO manager said that the intention for establishing the PMOs was a direct response to managing the MIG programme. So when the Capricorn municipality established the PMO at that time, it was solely to assist in managing and implementing the MIG programme and no other capital projects.

She further explained that the MIG programme is a conditional grant. This means there are conditions and requirements, systems and processes that need to be followed in order to comply with the funder's requirements. As a result, the Ministry of Local Government and Housing decided to establish a common structure in municipalities that will be held accountable for this programme. The intention was that there should be a structure that will respond to the objectives of the MIG, hence the PMOs in the municipalities. In order to respond to the strategies and objectives of the grant, the PMOs were designed to be structured in such a way that they will at least have a senior manager, who has the knowledge and relevant qualifications in the engineering field because, the MIG is a grant for infrastructure projects. So the manager must therefore at least have experience and qualification in this area. The manager must also have technicians and administrators that will assist him/her to meet the requirements. In addition to this insight, she also pointed out that there are structured guidelines that identify the

responsibilities of the unit are for the treasury and the provincial and national government. However, she also indicated that, the guidelines as provided by the Ministry of Local Government do not provide a clear-cut framework from which to establish and operate the PMO.

In response to the question whether project management methodologies such as those advocated by the project management institute were considered in the establishment process, the PMO manager said that the MIG guideline documents are not comprehensive guideline documents. They are just there to indicate what is expected of the municipalities. According to her, it is still the responsibility of each municipality to come up with the processes and systems that will make sure that the requirements are met.

She hinted that when she was still working as a director of infrastructure in the provincial department, she set up forums where the weaknesses of the guidelines were identified and facilitated a discussion on how they can be enhanced. She further noted that when she joined the Capricorn municipality, there was an outsourced service provider for the PMO, whose main responsibility was to manage the MIG programme and to set up processes and systems for the PMO and document them. However, the service provider didn't really perform and the municipality had to terminate the contract with the service provider. So the PMO manager had to set up a PMO on her own that consists of herself (PMO manager), GIS officer and the project clerk. The clerk assists with the documentation in the unit and there are no technicians or project managers within the unit.

It should be indicated that, both the provincial MIG managers conceded that the MIG guideline documents were poorly compiled as they lacked proper guidance as to how a PMO functions or the processes involved. The preliminary assessment conducted during the literature review contained in chapter two indicated that the guideline document does not strictly base the establishment of these PMOs on any framework of project management governance and/or methodology. Though there might not be a formula for establishing a PMO in general, Johnson, Joyner & Martin (2002) insist on the assertion that the successful implementation of PMO squarely rests on the process management and that the project management processes themselves should provide the fundamental building blocks for establishing procedures and training. In the case of these three municipalities, there is no common theoretical process that guides their establishment.

4.4.2. The business plan for PMOs

It was indicated in chapter one that, the Ministry of Local Government (2007)'s MIG Guidelines recommend the processes that should be followed to establish PMUs. The typical process entails the submission of a business plan for approval to the national MIG unit to establish a PMO in the first year of establishing a PMO. The business plan must explain the model that will be followed as well as details of its human resources, budget, and details as to how the PMO is going to benefit the municipality. As a part of the documentation review, these business plans were requested for review. Only Mogalakwena and Polokwane municipalities managed to supply the requested business plans. Upon review it was discovered that the business plans were developed on the same template and therefore were similar in many ways.

The business plans document how the municipalities aim to effectively and efficiently establish a PMO to manage the MIG projects. They are in aligned with the principles and objectives underpinning the design of the programme, as contained in the MIG policy framework. They outline the services that must be carried out by the PMO, the PMO structure and the implementation phases. For both business plans, Mogalakwena Local Municipality (2013) and Polokwane Local Municipality (2008), the services that must be carried out by the PMO are outlined as follows:

  i.   Financial management
  ii.   Project identification / feasibility process
  iii. MIG management
  iv.   Contract administration
  v.   Programme / project management
  vi.   Monitoring database
  vii. Project monitoring and evaluation
  viii. Other capital works funding in the case of Polokwane municipality
  ix.   Project based capacity building
  x.   Operation and planned maintenance in the case of Polokwane municipality

This is the confirmation of what both Polokwane and Mogalakwena municipalities have indicated during the interviews. Generally, the business plans are comprehensive documents and cover crucial aspects of what is required in order to establish and operate a PMO. Some of the aspects covered are the structure of the PMO, which entails determining the staffing

structure with costing, the staff's operational responsibilities and the implementation phase which covers staff appointments, the office environment and equipment, training and the implementation of the MIG's management systems

4.4.3. Summary of key factors considered in establishing PMOs

This section summarises factors that were discovered from analysing the results on the establishment process in the three municipalities. In retrospect, the establishment process in the three municipalities is commonly based on the MIG guidelines of 2007 and their respective business plans.

4.4.3.1.Mandate (strategy and objectives) of the organisation/municipality

The mandate for the Mogalakwena and Capricorn municipality is focused on the implementation of the MIG programme only, whilst Polokwane municipality has a broader scope to cover all capital projects. All three municipalities indicate that the PMO should respond to the mandate or strategy and objective as referred to by the Capricorn municipality. Before embarking on the establishment of the unit, the mandate, the strategy and objective must be clearly outlined. This should cover clearly stipulate the activities or services to be provided by the unit and the benefits or value add brought by the unit.

4.4.3.2.Capacity of the municipality

There is a consensus that capacity issues must be addressed when establishing the PMO. The MIG guideline also indicates that in the case where the municipality does not have the capacity to establish a sustainable PMO, a shared services model must be considered.

4.4.3.3.Human resources requirements

The human resource factor covers staffing requirements, qualifications and training needs. This aspect was drawn from the business plans of the two municipalities and was confirmed in the interviews as well. All the municipalities mentioned these issues as part of the factors to be looked into.

4.4.3.4.Staffing Structure of the unit

Staffing structure and costing must be determined. This also came out of the business plans submitted by the two municipalities. Once the capacity issues are addressed, the staffing structure should be done. This must be done in alignment with the mandate, strategy, objectives, staffing operational responsibilities and outputs.

4.4.3.5.Budget of the unit

The business plans stipulated that part of the PMO will be funded through the MIG allocation made to the municipality to the value of 0.5% to 5.0% of the total annual allocation (Mogalakwena Local Municipality, 2013 and Polokwane Local Municipality, 2008).

4.4.3.6.Implementation phase of the unit

The implementation factor is divided into phases as articulated in the business plans. It covers staffing appointments, office requirements, office equipment, training requirements and the implementation of management and operational systems. These issues were also mentioned during the interview particularly by the Mogalakwena and Capricorn municipalities.

4.4.3.7.Best practices and standards

 The Polokwane and Capricorn municipalities emphasised their alignment with the MIG project management cycle and IDP consultative process (planning process), with the establishment and operation of the PMO. The integrated development plan (IDP) serves as a strategic planning tool and is a process to facilitate effective integrated planning. It is also the tool to align and integrate municipal level sector plans and programs into integrated development goals, strategies, actions and projects.

4.4.3.8.Stakeholder relationships

Polokwane municipality emphasised the fact that the unit should operate in such a way that it is can keep in direct contact with key stakeholders, such as the national and provincial MIG offices. This aspect is also reflected in the MIG guideline document.

4.5. Adequacy of the PMOs to carry out their mandate

This section discusses and analyses the findings pertaining to the PMOs' fitness for purpose. It deals comprehensively with the mandate of the units, their successes, challenges and failures and whether they adhere to project management best practices.

4.5.1. The mandate of the PMOs

The mandates of the PMOs in each municipality are discussed and comparatively analysed. This will assist in identifying deficiencies or gaps for improvement and thus contribute to develop a conceptual framework for the PMOs which is the main aim of the study.

4.5.1.1.Mandate of Mogalakwena Municipality PMO

In the Mogalakwena municipality, the two participants (municipal manager and the PMO manager) confirmed that the primary mandate of the municipal PMOs is implementing MIG infrastructure projects. However, the PMO manager stressed that some municipalities may choose to make good use of their units for other grants as well, especially if the units have enough capacity to implement multiple infrastructure projects from various grants. The PMO manager in particular has lamented that their PMO in its current state does not have the adequate capacity for numerous projects and it should therefore create capacity and equip itself for all capital projects irrespective of what grant the project is funded from.

Upon further probing of both the PMO manager and the municipal manager, it was confirmed that, the operation & maintenance activities/unit (O&M unit) does not fall within the mandate of the PMO, but it was in the process of being combined with the infrastructure planning unit (IPU). This was also confirmed by the documentation review process that also showed the IPU in the technical directorate was in the process of being created. So in this municipality planning and operation and maintenance (O&M) are not within the mandate of the PMO. The PMO in Mogalakwena is therefore meant to implement the MIG projects and once the project is completed, the unit will then hand the project over to the O&M unit and/or IPU unit.

Regarding public private partnership (PPP) activities, both the municipal manager and the PMO manager expressed that the PMO in its current state does not have the capacity to explore the

PPP projects. This they claim is because in their very own nature, the municipal PMOs are not created or positioned well-enough to venture into PPP type projects. As a result of this position, the PPP projects in Mogalakwena municipality are implemented by the special projects unit. It seems the special unit was created for special projects, such as the current PPP project that is under way with the belief that the PMO may not be able to implement it. As indicated earlier, the PMO in Mogalakwena is split into two (equal in status) units, namely a special projects unit notwithstanding the infrastructure planning unit (IPU) and/or the operations and maintenance (O&M) divisions. The PMO is primarily focused on MIG projects and nothing else. While the MIG projects are mostly smaller type projects that do not have much attention from the national government, the special projects unit is in charge of bigger projects, for example, the unit is now implementing one of South Africa's flagship PPP type projects in the area. The project is called Olifants River Water Resource Development Project (ORWRDP), which is a partnership between the government of South Africa through the Regional Bulk Infrastructure Grant (RBIG) and mining companies in the area (Commercial Sector) called the Joint Water Forum (JWF). Even though the PMO manager thinks that the two units are equal, it is clear that this is not the case. By virtue of the special projects unit being given the mandate of implementing bigger projects such as ORWRDP, it suggests that the special projects unit has more weight than the PMO.

4.5.1.2.Mandate of Polokwane Municipality PMO

In the Polokwane municipality, the PMO manager was quick to point out that their PMO is not like other PMOs. The PMO in Polokwane municipality is mandated to implement all capital projects including the MIG projects. It has already been mentioned in the preceding section that the PMO in Polokwane does not work on MIG related projects only, but its activities or actions cover all other capital projects irrespective of the grant. The Polokwane municipality has various other grants that they are implementing such as RBIG, the Integrated National Electrification Programme (INEP), Development Bank of Southern Africa loan (DBSA) Grant, and the Neighbourhood Development Partnership Grant (NDPG).

When asked about the role of the operations and maintenance (O&M) unit, both the municipal manager and the PMO manager appreciated the fact that after every project concludes, the O&M kicks in and yet the MIG guideline does not sufficiently cater for it and they both accept that this is a bit problematic. The MIG is designed to cater only to implementing infrastructure

projects (mainly construction phase). It doesn't make provisions for the operation and maintenance of the projects once it is completed. This often leads to the built schemes being dilapidated and vandalised without benefiting the beneficiaries. The provincial MIG manager also shared these sentiments. As a way of addressing this, Polokwane municipality decided to position this unit (operation and maintenance) within the technical directorate. This is obviously because the municipality needed to create its own asset register and plan, in order to be able to maintain their projects, after they have been completed. Even though the PMO is not officially responsible for the O&M unit, the PMO manager alluded that they still compile the asset register and perform planning for the O&M unit to assist the other division.

When asked if there are any public private partnership (PPP) projects implemented by the unit the PMO manager pointed out that this is under the purview of the technical directorate. The PMO manager was further asked how the mandate influences the type the unit it should be. In his response, he pointed out that the mandate definitely influences the type of unit that a municipality should have and where is should be positioned. His assertion is that, if the PMO is only focusing on MIG projects, then that unit is perhaps best suited to be positioned within the office of the technical directorate, but if it is focusing on capital infrastructure projects on the whole, then it is definitely not suited to be in the office of the technical directorate. This is because the technical directorate will therefore become one of its internal customers. It is the researcher's view that, if the PMO is to implement all the capital projects irrespective of whether they are MIG related or not (which should be the primary mandate of every PMO) they should be a stand-alone directorate or division to be able to provide services to all its internal customers equally.

When asked to be specific regarding what role the unit played in project implementation, the PMO mentioned that they have five shadow project managers, comprising of two compliance project managers and three implementation project managers as shown in Figure 4.2. As the implementing directorates have their own project managers, the PMO project managers are more shadow project managers, mainly monitoring implementation and compliance. In the researcher's view, this approach is flawed as it promotes redundancy and unnecessary duplication. For effective performance, there should only be one team without any shadows that are responsible for monitoring implementation and compliance. It is precisely for this kind of arrangement where service providers have often complained of duplicative reporting, even in the other two municipalities.

4.5.1.3.Mandate of Capricorn Municipality PMO

In the Capricorn municipality, both the municipal manager and the PMO manager indicated that MIG implementation was the core mandate but ideally, it would be more practical for the unit to work on other programmes as well. This is because the municipality has other funds and programmes to implement, but the Capricorn PMO unit does not have the capacity to implement any programme at the moment. Furthermore, the PMO manager emphasised that it would be ideal to have a PMO that is focused on capital infrastructure as a whole rather than just the MIG alone. Also, it is the view of the provincial MIG manager that the mandate of the PMOs is not limited to MIG related projects. It was designed with other programmes in mind.

 When enquiring as to whether the mandate influences the type of unit that should be created, the PMO manager said that it would be a game changer if the PMO were the implementer of all capital projects in the Capricorn municipality. It would mean that the unit would be somewhere directly below the technical director's office, perhaps the deputy director and the two units (implementation unit and the planning unit) would fall under the PMO. This restructuring presents what the PMO manager believes would work efficiently if the unit was implementing all capital projects. She believes that for the PMO to be efficient, it must have authority over the other two units, i.e. Implementation and planning must be under the control of the PMO and the must be accountable for the two units. She is not content that at the moment the unit is not efficient at all. The municipal manager also said that the unit was more efficient when it was positioned in the municipal manager's office. For him, the positioning plays a role in the performance of the unit.

Additional questions related to PPPs and the O&M unit were not asked in this interview as it was made clear that the unit does not have the capacity to deal with any programme not related to the MIG. Upon inquiring what specific role the unit played in project implementation the PMO manager said at the moment the unit is just has a reporting function, reporting on other units' work, whether it is a wrong design or its right the PMO does not have any say in it. This is because the unit does not have any approval authority over the work of other units. In brief, the PMO unit in Capricorn municipality is simply an administrative compliance unit.

4.5.1.4.Comparative analysis of the Mandate of the PMOs

Table 4.3 shows a summarised comparison of the key drivers of the PMOs mandates in the three municipalities. All three municipalities are focused on the MIG programme, but, Polokwane's mandate is expanded into all capital projects and not limited to MIG related projects. In this regard, the Polokwane municipality's value for money invested on the PMO is definitely greater than that of the other two municipalities. However, the problem that still remains with Polokwane's arrangement, is that other directorates still have their own project managers that monitor the projects within those directorates, rendering the project managers in the PMO division redundant. Polokwane however endeavours to carry out most activities that are expected of the PMO when compared to the other two municipalities. Capricorn municipality only focuses on payment certificates and compliance in respect of the MIG projects. As indicated in the previous sections, Van der Waldt (2009) suggested that the name "Project Management Unit" in the case of municipalities such as the Capricorn municipality would be misleading and should rather be called "Project Reporting Unit", since the unit merely reports on projects and is seldom involved in the actual project management of municipal projects. The Mogalakwena municipality has adopted a strategy of creating other parallel units for other grants or projects that are not part of the MIG. Unfortunately this strategy also results in the duplication of positions in the municipality and therefore is costly and inefficient. The justification for this practice was that the additional technical units are necessary, partly because MIG guidelines are far too stringent with too many restrictions when it comes to the planning function, with its own reporting requirements. So focus must be put on the MIG fund management restrictions and requirements. The restrictions include among others the requirements for a business plan or business case, feasibility studies and a well-resourced unit that will be able to implement the projects. These restrictions are in the opinion of the researcher, at least leaning towards the project management best practices. What's more, is the municipality was supposed to adopt them in striving towards an efficient PMO, rather than creating multiple units within the technical directorate. This approach by the municipality certainly gives rise to the question of project management maturity of the municipality, as they seem to be avoiding the very principles of the project management best practices.

None of the PMOs implement public private partnership (PPP) type projects, as these are viewed to require the special attention of the Director. This attitude seems to suggest that PMOs

or projects that are implemented in the PMO are less important. This is more apparent in the Mogalakwena municipality which tends to create special units for 'special projects'.

Planning, operations and maintenance (O&M) would theoretically be expected to be part of the PMO. However, this is not the case in the municipal environment. Polokwane is involved in these activities, but there is still specific divisions for these activities. The systematic logic is that, for the unit to be efficient, it must be responsible for planning, implementation and to a larger extent, maintaining the projects it has built. Even if dedicated teams are required for these activities, those teams should be within the PMO. Perhaps this is one reason why the PMO should be viewed from the directorate perspective. Mogalakwena's new plan of combining planning and O&M seems to be the right move, as the maintenance and the operational issues may be interrogated at an early stage (planning stage), to avoid complexities during the maintenance period. These activities are scattered in the case of Polokwane. But in the overall scheme of things, literature has shown that all these activities can actually be overseen and implemented by one unit.

Once the unit's mandate is broadened, its usefulness, effectiveness and authority also increases and it can no longer be positioned within other directorates, but becomes a directorate itself. This is has been the case of Polokwane where the unit could not fit within the technical directorate and a similar assertion is shared by Capricorn and Mogalakwena municipalities. Nonetheless, the unit is still positioned within another directorate in the Polokwane municipality. Bolles & Hubbard (2015) strongly advocate that the PMOs that have an influence enterprise-wide are those established at the enterprise or directorate level. They believe that an enterprise oriented PMO is more likely to be successful and beneficial to the enterprise. More so than the PMOs that are positioned within other directorates or divisions. This designation according to Bolles & Hubbard (2015) provides the assigned executive manager of the enterprise PMO with the authority, acceptance, adoption, and autonomy required to establish, monitor, and control the distribution of the resources needed to successfully utilise project business management best practices enterprise wide. Therefore, the lower the PMO is positioned within the enterprise, the lower the beneficial impact that the PMO can have on the enterprise's overall business and financial position in the marketplace will be (Bolles & Hubbard 2015).

Table 4-3: Comparison of the key drivers of the mandate of the PMOs

Key drivers of the Mandate	Mogalakwena Municipality	Polokwane Municipality	Capricorn Municipality
Grant/capital budget	Focuses on single grant, i.e. only on MIG projects. (other units are in place for other projects)	Implementation & monitoring of all capital projects including MIG	Focuses on single grant i.e. MIG projects only
Major Activities	Contract management Monitoring Payments certificates Support for other divisions	Involved in planning but the planning responsibility is within the other business unit within the same directorate. Involved in some activities of the O&M such as asset register (otherwise there is a O&M unit in the technical directorate) Training and standardisation Compliance Management of consultants and contractors and contract management Support for other divisions	mainly focuses on Payments certificates & Compliance
Limitations	Limited to project implementation phase No planning activities (separate division) No O&M activities (separate division) No PPP(PPP competence of Special projects division	No PPP activities (PPP competence of Technical directorate)	No planning (separate division) No O&M (separate division) No PPP No monitoring and implementation
Positioning	Within the Technical directorate	Within the strategic planning monitoring and evaluation directorate (SPME)	Within the Infrastructure Services directorate

Table 4.3 is briefly described below in terms of the key drivers in relation the mandate of the PMOs within the three municipalities.

a) Grand/capital budget

Most capital budgets are secured through grants. The MIG is the single most popular grant for the municipalities. There are municipalities such as Mogalakwena and Capricorn that are implementing single grant capital projects. However other municipalities such as Polokwane do have multiple grants and other capital budgets for their infrastructure projects. So the capital budget or number and the size of grants do have a major impact on the mandate of the unit.

b) Major activities of the unit

What the PMO does, in terms of its actions, have a greater impact on its mandate. While the Polokwane and Mogalakwena municipalities are seen to be operating at a tactical planning level as a division PMO. The Capricorn municipality however, is definitely only offering administrative support as a project support office (PSO) (see Table 2.3).

c) Limitations of the unit

Both the Mogalakwena and Capricorn municipalities' PMOs are limited to the implementation phase of the projects. They are not involved in planning and operations and Maintenance of the projects. This reflects an incomplete project cycle. (See Figure 1.6 and Figure 4.4). Polokwane Municipality suffers capacity limitations in that it could not implement any public private partnership (PPP) projects.

d) Positioning of the unit within the organisation

All three PMOs are positioned within other directorates and this has an impact on their mandate and authority. The position of a PMO within a hierarchical organisation establishes its degree of authority acceptance, adoption and autonomy (Bolles & Hubbard 2015). (See Sections 1.2.2; 2.6.1 and 2.6.3).

4.5.2. Achievements and Challenges of the PMOs

This section discusses the achievements and challenges faced by the PMOs in all three municipalities as perceived by respective respondents. It further discusses their perceptions of the PMOs/municipalities not only from the municipality employees (Municipal Manager and the PMO manager) perspective, but from various other stakeholders from outside the municipality such as service providers and community leaders' points of view (as indicated in Table 4.1). The aim is to find out whether, in their current state, the municipalities/PMOs are achieving their (service delivery) objectives and/or facing obstructive challenges.

4.5.2.1.Mogalakwena Municipality PMO

Regarding the Mogalakwena's PMO manager, there are both challenges and success stories to tell. The PMO has been outsourced for number of years and little success could be attributed the out-sourced organisation during that time relating to project implementation. However, the PMO manager expressed that now it looks like it has gotten even worse and hence the creation of two or three other units to focus on infrastructure projects implementation. The Municipal manager however believed that there are certainly some kind of improvements that can be seen from the point that there was a substantial utilisation of funds. Both the PMO manager and the municipal manager agree that based on the financial points score (capital expenditure) they are improving, but they could have done better if the three technical arms/units were strengthened with more experienced staff. There is also a noticeable improvement in the quality of the services/projects delivered and the turnaround time of the project delivery.

Apart from the little success attributed to the municipal manager and the PMO manager, they both acknowledged that the PMO is struggling and that there are other challenges that are not within the control of the unit. Challenges such as political interference and community protests and incompetent service providers, were cited as the other challenges that are not within the control of the unit.

According to the external service providers (contractors), the Mogalakwena municipality's PMO can be summed up as a huge failure and must be totally replaced by the other two functioning infrastructure units; namely the special projects unit and the infrastructure planning unit. This is because the contractors believe that the PMO does not function efficiently. They

(the contractors) cited that it takes forever for their payments certificates to be processed. They further noted that most of the PMO and other municipal employees that approve their certificates do not even know what is happening on site. When asked who the responsible persons that are on site are, the contractor mentioned that project managers from the water and sanitation unit are on site and believes that they should be the ones approving the payment certificates. This is reasonable suggestion and it further reflects the weakness of the entire structural arrangement of the municipality. When enquiring on the specific role played by the unit in project implementation, all the contractors revealed that the technicians in the PMO focus mainly on the administrative compliance of the service providers. Their time on site is therefore minimal and therefore he believes that the PMO in its entirety does not necessarily add value to the project implementation and should be abolished.

When questioning what the expectations of the community are in terms of service delivery projects, both community leaders and councillors alluded that people of Mogalakwena are in dire need of service delivery. They further hinted that Mogalakwena residents expect timeous service delivery from the municipality, but that was not necessarily the case. The residents are faced with persistent challenges following municipal workers going on strike over salaries and this has taken a long time. The community leaders insist that the duration of the strikes caused lots of frustration for residents. This statement suggests that there is general employee unhappiness in the municipality and this has impacted negatively on the service delivery within the municipal area. The PMO is obviously not immune to this unhappiness. This is a challenge that a municipality can control. According to one councillor, the municipality is facing a backlog of various infrastructure projects, such as electricity infrastructure to several of the villages within the municipal area. So for him it is difficult to say that the infrastructure projects are delivered satisfactorily. There are still many improvements required for the municipality to deliver projects satisfactorily. Furthermore, the councillor indicated that there are not enough qualified people out there to get the job done. He also said that some of the problems come from the community itself and some are due to political interference. Community disruptions are very common and therefore due diligence and care need to be exercised whenever there is a community project.

Based on all these observations, it can be deduced that the PMO does not have adequate capacity for carrying out its mandate. The municipal manager only base their success story on the high utilisation of the budget, very little is noticeable on improvements in the quality and

turnaround delivery times. The PMO manager shared a slightly different view that there is a significant level of underachievement in terms of quality and delivery time, but agrees on capital expenditure and community dissatisfaction. This view is strongly supported by the external stakeholders.

4.5.2.2. *Polokwane Municipality PMO*

In the Polokwane municipality, both the PMO manager and the municipal manager expressed that they regard their unit as a success story. This is based on a high level of utilisation of funds, for an example, in the financial year (2014/2015) they managed to spend 82% of the capital they were allocated. This figure is also supported by Polokwane municipality's annual financial statements (Polokwane Local Municipality, 2014). Even though the 82% is in line with the work done, challenges surrounding late completion of projects, completion of projects outside budget and compliance issues in line with best practices remain. The success story was further challenged by asking why they still have so many service delivery protests and backlogs if the PMOs are a success story. The PMO manager then brought in the issue of the poor performance of the consultants and the contractors as a contributing factor besides political interference. The issue of prolonged procurement processes for service providers was also brought into the picture. Subsequently it was quickly agreed that it can be solved by implementing multi-year appointments and ensuring the registration of service providers into the municipal database. When these challenges emerged during the interview, they both agreed that continuous improvement is a going concern. They believe that there is a huge space for improvements, but they are managing and working harder to achieve their objectives. The Municipal manager indicated that more challenges such as political interference remains a thorn, as it impacts them negatively. He was asked to give an example of how political interference impacts negatively on their activities. He shared incidences where the projects were frozen and the predecessor got suspended and she is now being investigated for awarding the tenders without council approval.

Just like the Mogalakwena contractors, the Polokwane municipality service providers (both contractors and consulting engineer) acknowledged that the PMO is a huge failure and must be totally removed. They shared reasons such as delay in payments and multiple conflicting instructions as the main cause. The service providers also indicated that there are too many inspectors on site giving different instructions and that is a big problem for them as the contractors. Most of them specifically pointed out that sometimes they get visited by three to

four different project managers including consultants. There is a strong belief that there is too much duplication happening in Polokwane municipality and that impacts the effectiveness of the progress on site. The contractors also argued that there is no meaningful role that the unit is playing, as there is an electricity unit which is responsible for the work on site and the consulting engineer is also supervising and monitoring their work on a daily basis. Another concern was that these various divisions are causing a delay in their payments, a sentiment which was also shared by the Mogalakwena municipality contractors.

The community leaders and a councillor from Polokwane municipality were asked about the expectations of the community from the municipality, in terms of service delivery projects, the majority of them did not mince their words when they harshly criticised the municipality. They all revealed that the municipality's service delivery backlogs remain a challenge. There is an outcry in the nearby township for basic services with the community experiencing backlogs such as constant shortages of water, broken water pipes and power shortages. When asked whether problems are just maintenance oriented, as described by the municipality or some issue the community is unaware of. There are also problems with new projects that are being implemented, the councillor indicated that even in respect of new projects there are problems. He cited as an example the fact that there are problems on priorities of the projects and that most of them are taking forever to complete and that poor workmanship or substandard work by the contractors remains a huge challenge. According to him, this is because the municipality is hiring their friends who are not competent as contractors. Furthermore, the councillor also hinted that most communities are not happy as there are obvious shortages of basic services and he even cited that community of Seshego Township (a nearby township under Polokwane municipality) have recently been protesting through organised marches to the municipality for poor service deliver, particularly in respect of the severe water shortages in the area. The community leaders believe some of the problems are aggravated by the fact that the municipality has hired lots of unqualified people who cannot get the job done. For them, the resources are there but they cannot be utilised effectively and efficiently. The councillor supported by other community leaders further conceded that there is a significant amount of political interference in the activities of the municipality. As indicated above, he said that cronyism is at the centre of the problem and the political bosses are forcing their hands into the administrative affairs of the municipality, in order to secure tenders for their friends and families. The competence of the unit cannot be solely blamed for the poor performance as the politicians have a hand in it. Besides being hailed as a success story by the officials, the external

stakeholders seem to hold a contrary view. It is a bit difficult to expressly say that the PMO has failed on its mandate. As a result of fair amount of dissatisfaction from these stakeholders, it is safe to say that the Polokwane PMO is not succeeding in carrying out its mandate.

4.5.2.3. Capricorn Municipality PMO

In Capricorn, both the municipal manager and the PMO manager agree that in its current state, the Capricorn PMO is ineffective. The municipal manager cited understaffing and the resultant inefficiencies as the major reason for the level of underachievement. The PMO manager cited structural failure and the fact that there are no proper guidelines for an efficient PMO. She emphasised that success cannot just be measured on expenditure only, but by looking at the quality throughput that is achieved within budget, by fostering a compliant environment which is a better measure of success. She revealed that this notion is contrary to what is happening in her municipality. The compliance and control systems are non-existent within the Capricorn municipality. There is no compliance, no accountability, but they are spending. She pointed to the huge pile of files on the corner of her office and said, 'that's what I mean by failure'. That was a pile of payment certificates waiting to be processed by the PMO manager. The way the current systems works is that, the payment certificates from the service providers goes through the project manager who is directly involved in that particular project. There are about 10 project managers in total, all in the other three units (planning, implementation and O&M). Each one of these project managers is supposed to ensure compliance before their unit managers can approve the payment certificates. After that the certificates go to the PMO manager to check them again. Despite that those 10 or so project managers and their unit managers are not necessarily interested in the issues of compliance which they regard as the function of the PMO, they just attend to what they are interested in and leave the compliance issues to the PMO. The manager complained that she still finds lots of irregularities and she is then forced to return them back for corrections. She says the reason why the contractors don't like her office is because her office delays their payments. Ironically, as the Capricorn PMO manager has mentioned, both the Capricorn municipal manager and the provincial MIG manager have indeed said that they believe that the units are generally achieving their objectives. The reports reflect a positive outlook but there is there is still an opportunity for improvements. The provincial MIG manager specifically mentioned that the there is a room for improvements, but he can't proclaim the units as failures.

On the other hand, the external service providers (especially the consultant engineer) believe the unit is an obvious failure. The municipality must go back to the drawing board and strategise on the role that the unit should play and re-establish, it in line with the new mandate that they would have decided. The consultant said the municipality must first know what they want the unit to do as that will assist them to understand where and how they would like to position and structure their unit. He was asked to share his views on whether the municipality's PMO is functioning properly (namely; effectively and efficiently). He was of the view that the municipality cannot be said to have a PMO, since there are only three staff members that are mainly focused on payment related administrative work and ensuring that the projects comply with the requirements of the projects funders, especially the MIG. For him it is like the unit is underperforming. There is a lot more that's needs to be done before anyone can entertain that the unit is functioning properly. According to him, the unit does not play any meaningful role at the moment. It must be re-organised.

When asked about the expectations of the community in terms of the service delivery projects, both the community leaders and the councillor in the Capricorn municipality hinted that there are huge expectations, mostly form the rural areas for water and sanitation projects and conceded that the capacity and the service delivery programme at the municipality does not match up to the demand in these areas. The councillor painted a rather more tangible picture by indicating that, at the moment there is a demand for clean accessible water for 11% of the citizens of the Capricorn district, and 71% of households are without adequate sanitation systems in place. Finally, 41% of the road network on the district roads needs to be either repaired of reconstructed, which points to an incredibly large backlog. These figures were confirmed by the municipality's integrated development programme (IDP) (Capricorn District Municipality, 2015). The community expects all these issues to be addressed. The councillor said that it can't be said that the municipality delivers satisfactorily on infrastructure projects, because even the Mayor of the Capricorn municipality himself had recently spoken publicly about the need to strengthen the municipality's capacity by establishing a well-functioning PMO that will assist the municipality to deliver infrastructure projects satisfactorily. At the moment both the community leaders and the councillor are sceptical about the effectiveness of the municipal service delivery. They are all confident that there is a lot that's not being done, due to the lack of capacity within the municipality. For them the PMO is very inefficient and they believe their views are shared by many within the municipality. The councillor believes that the unit is at its weakest point at this stage and it must be revamped. Be that as it may the

councillor didn't want to put the blame squarely on the door of the PMO and municipality administrators, like in other municipalities; he conceded that there is some kind of political interference in the activities of the municipality. He believes political interference is unavoidable, but it should be managed appropriately by the administrators.

The Capricorn PMO has clearly failed in carrying out its mandate. This is not difficult to judge as the PMO manager herself admitted this fact and it is supported by the external stakeholders. The municipal manager may not have been sufficiently exposed to the issues faced by the unit to make a sound judgement on as to whether the unit is succeeding or not.

4.5.3. Adherence to project management best practices

This section discusses each municipality's adherence to project management best practices and/or compliances issues.

4.5.3.1.Mogalakwena Municipality PMO

In Mogalakwena municipality, the PMO manager indicated that they have developed an alignment strategy from the planning phase. They have managed to align their grants (funded capital projects) such as the RBIG and MIG to project management cycles. It is claimed that most of the engineering consultants are not competent when it comes to MIG projects. Incompetent contractors also give rise to endless problems. This is because MIG programmes are mostly smaller in size and therefore attract smaller service providers, most of whom are not sufficiently experienced. When asked if they have a project implementation methodology in place, the PMO indicated that there is no dedicated methodology that the municipality is using except for the MIG guidelines. This gave rise to concerns around how the municipalities implement projects, as there no clear guidelines or methodologies available for project implementation.

4.5.3.2.Polokwane Municipality PMO

In the Polokwane municipality, the PMO manager was quick to point out that he believes the MIG guidelines are closer to project management best practices, as their processes are aligned with the PMBoK (PMI, 2013). This was explained in a detailed step by step process as highlighted in Section 4.4.1.2. The PMO manager believes that because the MIG guideline is

closer to the PMI's (2013) principles, everything they do is perfect when it comes to best practices. If this is the case, it then exposes the PMI's (2013) principles, when it comes to a framework that can work efficiently within the municipal environment. For example, the PMO in Polokwane municipality is not responsible for planning, operations and maintenance activities on the projects that they implement, even though it does make an input on these activities. However due to the unit not being the owner of these activities, it cannot be held accountable for non-performance or failures on the projects, whose direct causes are poor planning. Poor planning often affects the integrity of the project and it is normally realised after completion and/or during maintenance period.

4.5.3.3.Capricorn Municipality PMO

In Capricorn, the PMO manager acceded that they are not implementing the projects in line with management best practices. She hinted that the way they are structured, it will not be possible for them to implement projects effectively. Every unit looks after its own interests and there is no collaboration between the units.

4.5.4. Comparative analysis on the achievements, challenges and failures

Table 4.4 compares the three municipalities in terms of their achievements, challenges and failures in their respective PMOs. The comparison assists in two ways. First in assessing whether each municipality is fit to carry out its mandate and secondly in identifying common challenges and failures. This approach will assist in chapter five when developing a framework for an effective PMO.

Below is the brief description of Table 4.4 in terms of achievements, challenges, failures and adherence to project management best practices. The challenges are sub-divided into internal and external disablers, in order to separate controllable from non-controllable factors. These attributes or factors were used as the yardstick for measuring the adequacy of the PMOs in carrying out their mandates.

Table 4-4: Comparison of the achievements, challenges and failures of the PMOs

Municipalities / Findings	Mogalakwena	Polokwane	Capricorn
Achievements	Improved expenditure	82% expended capital	None
Challenges	External disablers • Political interference • Community disruptions/protests • Incompetent service providers • Unqualified staff Internal disablers (system inefficiencies • Delays in payment certificates • Duplication of resources • Employee strikes • Service delivery backlog Perceptions • No value add • Non functional • Poor service delivery • General dissatisfaction by the community members	External disablers • Political interference • Incompetent service providers • Unqualified staff Internal disablers (system inefficiencies) • Duplication of resources • Service delivery backlogs • Delay in payments Perceptions • Dissatisfaction by the communities • Cronyism • Poor service delivery	External disablers • Political interference Internal disablers (system inefficiencies) • Non-existent systems • Non compliance • No accountability • Multiple units • Understaffed • Service delivery backlog • Delay in payments • Lack of capacity Perceptions • Unit in its weakest stage • General dissatisfaction by the communities • Non functional • Poor service delivery
Failures	• Creation of multiple technical units for infrastructure projects implementation resulting in duplication • Lack of capacity • Payments frustrations by the service providers • Negative perceptions from external stakeholders	• Political interference impacts negatively • Poor performance by service providers • Prolonged procurement processes • payment delays • negative perceptions from external stakeholders	• Dysfunctional unit • Lack of resources • Understaffed • Payment delays • Its location may be the cause of failure • Duplication of resources through creation of multiple units • Negative perceptions from external stakeholders
Adherence to project management best practices	• Alignment strategy in place	• In line with PMBoK	• None

4.5.4.1.Achievements

In as far as achievements of the PMOs are concerned, there is not much to boast about in all three municipalities. The Mogalakwena municipality cite improved quality and turnaround time, but there is no evidence to substantiate these claims. Both Mogalakwena and the Polokwane municipalities have met their expenditure targets. It is however difficult to claim this as an achievement, as the expenses can be made without following process and procedures (i.e. unauthorised expenditure) or even worse, such expenditure could be classified as fruitless and wasteful expenditure. Fruitless and wasteful expenditure means expenditure that was made in vain and could have been avoided had reasonable care been exercised. Irregular expenditure in relation to a municipality or municipal entity, means expenditure incurred by a municipality in contravention of, or that is not in accordance with, a requirement of the Municipal Finance Management Act 56 of 2003, and which has not been condoned in terms of section 170 of this act. Both municipalities had disclaimers on their annual financial statements.

4.5.4.2.Challenges

Focus must be given to the internal disablers or system inefficiencies as these are within the control of the municipalities. The improved systems should therefore be able to address these disablers. If these are adequately addressed, then the negative perceptions may be addressed. As things are, it can be concluded that the Mogalakwena and Capricorn Municipalities are not fit for purpose and Polokwane Municipality is partially fit. So Polokwane's model should be the point of departure from which the envisaged framework should emanate.

4.5.4.3.Failures

Some of the interesting causes of failures across the municipalities include the fact the municipalities tends to create multiple technical units for different grants on infrastructure projects. The reason revealed for this practice was cited as the stringent MIG requirements. However, this was very problematic as it created the duplication of resources and confusion on the side of the service providers. Other major problems that can be linked to this practice include delayed payment processes, which in turn may lead to poor performance by service providers.

4.5.4.4.Adherence to project management best practices

Mogalakwena and Polokwane Municipalities are trying to realign themselves towards best practices. Polokwane in particular is to a larger extent, in line with the PMBoK.

4.6.Patterns of municipal dependant factors

This section explores and analyses any patterns of municipal dependent factors or characteristics that may dictate the type of project management office that is suitable for the municipalities. These may include both the differences and common factors.

4.6.1.   Common denominators in the three municipalities

This subsection reveals and discusses the common factors that have been found in the three municipalities. These factors are analysed comparatively in the succeeding section moving towards building a conceptual framework.

4.6.1.1.Political Interference

Almost all participants cited that political interference is one of the major drawbacks in their quest for efficiently running the municipalities and PMOs in particular. It is clear that political interference plays a major role in the effectiveness and efficiency of the units in municipalities. Consequently, there is a need to navigate through these challenges and find a better way of operationalising these units. That is how we can still make them function well even within these circumstances. According to the external service providers (the consulting engineers and the contractors) who has also worked for various other municipalities (for more than 20) across the country, political interference is a universal problem and most of these units operate in a similar environment, in as far as political interference is concerned.

4.6.1.2.Delayed payments of service providers

The problem of late payments is directly related to the unit, as the units are mostly dealing with compliance checks and payment processing. The delay can be attributed to the fact that there might be lots of duplication in the system, as the payments certificates first start in the relevant

units for approval before they are sent to the PMO division for compliance checks and further processing and approval.

4.6.1.3.Legislative requirements

The legislative requirements and guidelines from the Ministry of Local Government (2007) are the same across all the municipalities in South Africa. MIG guidelines are just guidelines that are not binding and are flexible in nature and do not have a distinctive framework from which the municipalities can draw definitive guidance for the formulation of a PMO. It is often believed that the legislative requirements are the source of procurement delays. One contractor for Polokwane municipality alluded that the fact that Municipal Finance Management Act is the common denominator that governs all municipalities and that procurement processes are the same and therefore problems are also the same. Asked what kind of problems are the same across the municipalities, all the contractors mentioned the problem of the late appointment of service providers and payments to service providers. However, factors such the legislative requirements are not necessarily prohibitive in their nature, but rather intended to improve good governance and compliance issues among other factors.

4.6.2. Differences on the PMOs in the three municipalities

It is important to indicate if there are differences among the PMOs that make each PMO to be implemented and operated in a unique manner from other PMOs. This subsection discusses the key differences between the three municipalities. It is important to note that the distinguishing differences are mostly internal factors, which the individual municipalities have total control over and therefore may be readjusted to suit any requirements for an improved model and framework. The framework therefore should also be flexible to accommodate the fact that the municipalities may have different factors such as staffing requirements depending on the size of the municipality and/or capital budget. Gap analysis may have to be conducted to address issues of organisational maturity for any municipality before or during the establishment of the PMO.

4.6.2.1.The Size of the Municipality/organisation

It was found that the three municipalities are not necessarily similar in size. Polokwane municipality is deemed to be a bigger municipality compared to the other two municipalities. This is confirmed by the size of the organisational structure and both the capital and operational budgets, including the size of the grants. The difference in size in the three municipalities influences the difference in the staffing requirements of their PMOs. Polokwane municipality's PMO is better staffed and equipped compared to the other municipalities and Capricorn municipality is the least equipped. This is because the staffing alignment or adjustment of the structure is mostly influenced by the amount of the grant or the capital budget. So the major differences in the PMOs of different municipalities will be the sizes in terms of the structure, as these are influenced by the size of the municipality itself and on whether the municipality is a water services authority or not. A water service authority is a municipality that is responsible for providing access to water services based on the Water Services Act 108 of 1997 of the Republic of South Africa.

4.6.2.2.The Size and number of the grants

The size of the grant itself and the number of grant based projects a municipality is implementing influences the role and or mandate of the PMO. The role that the PMO plays within the organisation influences its authority. The Capricorn municipality depends purely on the MIG for its capital expenditure and this is a relatively smaller budget compared to the Polokwane and Mogalakwena municipalities. The Polokwane municipality has a sizeable number of grants including the MIG and they are all implemented by the PMO.

4.6.2.3.The positioning of the unit

The positioning factor is a dominant factor across various aspects that were dealt with in this research and features in many areas of discussion. In the context of patterns of municipal dependent factors, positioning still plays a key role in what eventually becomes an effective PMO within the municipality. It has been shown how Polokwane Municipality's is performing compared to the other two municipalities by virtue of the unit being positioned outside the technical directorates. The (Polokwane) municipality has clearly distinguished itself from the others by making sure that the PMO is positioned under a different directorate. This strategic

rearrangement may be efficient in an environment where the PMO is responsible for all capital projects and not just the MIG related projects. However, due diligence has to be carried out to avoid the duplication of resources.

4.6.2.4.The Authority of the PMOs and their institutional arrangement

In the Capricorn Municipality, the PMO manager believes that their unit is very different compared to other municipalities. She spent some time comparing her unit with the Polokwane municipality's PMO. She indicated that, in the Polokwane municipality, the PMO is actively involved in the project implementation from planning stage up to the end. She highlights that this gives the PMO manager in the Polokwane municipality some kind of authority that she does not have. This she says is because the centre of power is clear. Asked what she means by that she said there is a technical executive director and then there is PMO division outside the technical directorate. She says that, in their case, the unit is within the office of the infrastructure services (technical) director and there are three other units within the same directorate and they are planning, implementation and the operation & maintenance units. Her arguments confirm the assertion by Bolles & Hubbard (2015) that the position of a PMO within a hierarchical organisation establishes its degree of authority, acceptance, and the responsibility within the enterprise.

According to the Capricorn municipality's PMO manager, they have a very bad structure as she believes the structure disempowers the PMO unit. She gave an example where the director had just organised a project meeting to discuss a projects progress and didn't even invite her but the other units were invited. These incidences let her to believe that the unit doesn't really add the value that it should be adding as compared to other municipalities and this is evident as her colleagues do not even see the need to invite her to the crucial project meetings.

4.6.2.5.Resourcing strategies

Instead of empowering the PMO unit in the Mogalakwena municipality, they have resorted to creating a new unit called the special projects unit when they got a grant called Regional Bulk Infrastructure Grant (RBIG) for bulk water projects in the area. This was an opportunity for the municipality to strengthen and empower the existing PMO. However, the municipality views its PMO as being suitable for small projects, because it is not well resourced. The Polokwane

municipality does take its PMO seriously and has resourced it significantly. The unit has five project managers and two assistant project managers in response to the strategic requirements of the unit.

4.6.2.6.Project Management Maturity levels of the organisation

In the Polokwane municipality, the PMO manager boasted that they are benchmarking themselves with the big cities such as Tshwane. He believes bigger municipalities such as Tshwane Metro and Polokwane Municipality are matured in terms of the project management maturity level. This he measures in terms of the number of project managers employed and the language used. Unfortunately, the same could not be said about the two other municipalities. Even in the case of the Polokwane municipality, the maturity level could be as low as level one or two of the project management maturity level measurement scale. Level one is a stage where an organisation recognises the importance of project management and the need for a good understanding of the basic knowledge on project management and the accompanying terminology, whilst in level two the organisation recognises that common processes needed to be defined and developed such that successes on the project can be repeated on other projects Kerzner (2001).

Even though there are differences in the maturity levels, almost all the municipalities seem to be underperformers when it comes to project management maturity. Most municipalities cannot even speak the project management language. They are not even at a stage where they can adequately recognise the importance of project management and the need for a good understanding of the basic knowledge on project management and the accompanying terminology. This ailment can be treated by rigorous training on project management and this must be a basic requirement and a prerequisite for senior managers in the built environment such as the PMO division.

4.7. Chapter Summary

This section presents a summary of the whole chapter from the profiles of the respondents who participated in the study, the positioning and the structural organisation of the PMOs in the three municipalities to the key findings in relation to the three objectives.

It was found that two of the three PMOs are located within the technical directorates of their municipalities and none of their PMOs is standing on its own as a directorate. This is partly because the PMOs are MIG oriented and do not go beyond the scope of the MIG programme. Their formation and operation is also not guided by project management best practices. This suggests that the PMOs could be ill-established and under-mandated. This was also witnessed by the fact that most crucial activities (such as planning, operation and maintenance) are not carried out by the PMO. This has shrunk the unit to almost non-existence in the case of Capricorn Municipality. The performance of the unit is influenced by the location and the mandate. If the unit is on its own as a directorate, it will perform the better and the unit should be able to implement all the capital projects.

On factors considered in establishing PMOs, the process for establishing the PMOs and the adequacy of the PMOs in carrying out their mandates were assessed. It was found that the MIG guideline documents were the main blueprint for establishing the PMOs in all three municipalities and only one of the three PMOs assessed can be said to be aligned to project management best practices. It is worth noting that, the MIG guidelines do not provide for any sort of framework for establishing the PMOs.

On the adequacy of the PMOs to carry out their mandates, first it was found that most of the municipalities' mandates concern MIG related projects, except for the Polokwane municipality whose mandate was to implement all capital projects. At face value, based on their achievements, it can be said that the Mogalakwena and Polokwane municipalities can be said to be performing adequately in carrying out their mandates. However, the Capricorn municipality PMO manager dismisses the notion of measuring adequacy or success by merely looking at the expenditure. She said that municipalities have a tendency of expending without compliance and that cannot be construed as a success. Looking at the failures, it is clear that she may be correct. From the point of departure of the PMOs failures, none of the PMOs can be said to be a success or adequate. Challenges were grouped as internal and external disablers

and included among others, the duplication of resources, service delivery backlogs and delays in payment certificate processing, political interference, incompetent service providers and unqualified personnel as external service providers.

In assessing if there are any patterns of municipal dependent factors, it was first assessed if there are any set of unique factors in each municipality. There were found be issues such as Staffing requirements which would normally depend on the grant size or capital budget, organisational maturity level of the organisation. The common factors were political interference and legislative requirements.

CHAPTER 5: THE PROPOSED CONCEPTUAL FRAMEWORK FOR PMOs

5.1. Introduction

This chapter describes the development of the proposed conceptual framework for PMOs suitable for most municipalities in South Africa. The chapter comprises of four sections with the next section dealing with the municipal processes and requirements, which is followed by the presentation of the proposed conceptual model and framework.

5.2. Municipal processes and requirements

This section deals with issues pertaining to municipal processes and systems that need to be considered in developing a framework for the municipalities in South Africa, including the general requirements for conceptualising a sustainable project management model in relation to the selected municipalities. The section briefly revisits the processes and systems of the municipalities and any other municipal dependent factors within the control of the municipalities. Figure 1.6 (as collaborated by Figure 4.4) illustrates the municipal processes and project cycle, which shows alignment in line with the recommendations from Projects In Controlled Environments (PRINCE2)'s project cycle (OGC, 2009) and the Project Management Body of Knowledge (PMBoK) PMI (2003). Together with other factors outlined in Section 4.6; Figures 1.5 and 4.4 should therefore set the stage for the proposed PMO model and framework best suited for South African municipalities.

5.2.1. Service delivery life cycle

Figure 1.7 shows the role of the PMO in the context of service delivery and Figure 1.8 shows the relationship between the PMO and service delivery. The service delivery life cycle should therefore be considered part of the processes required for establishing an effective and efficient PMO and should lend its emergence from the Figures 1.5 and 4.4 which illustrate municipal project process cycle and MIG project management cycle respectively. At the municipal level and in the context of municipal processes, the service delivery life cycle should be defined within municipal parameters, such as municipal governance structures, systems, policy and procedures and legislative limitations.

The service delivery life cycle is therefore all the phases and processes from policy through to service provision at the municipal level. Figure 5.1 shows the service delivery life cycle as

simplified by the Ministry of Local Government (2006). It shows phase one as the policy formulation phase, phase 2 as the planning stage, followed by implementation and service provision. The phases are briefly discussed below.
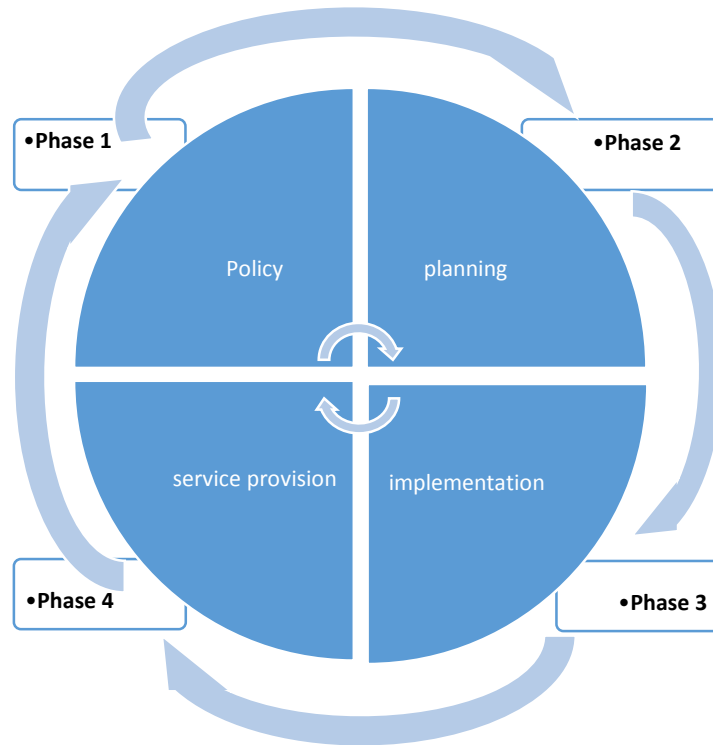
Figure 5-1: Service delivery life cycle
Source: Ministry of Local Government (2006)

5.2.1.1.Phase 1 - Policy

Policy to guide municipal infrastructure and service provision is mainly the responsibility of national and provincial government. The national government is responsible for developing the municipal infrastructure policy and set standards for delivery systems. However, certain service provision policies and bylaws are still the responsibility of the municipality.

5.2.1.2.Phase 2 - Planning

Whilst national and provincial government are responsible for creating and enabling policy and maintaining the financial and institutional (support) environment for municipal infrastructure, municipalities are responsible for planning and implementing municipal infrastructure. This is reflected in the various policy documents, which support the devolution of responsibility for

municipal infrastructure development to the lowest possible level. With the current set up, municipalities are responsible for the IDP process although it is outside the mandate of the PMO. The PMO however is responsible for pre-feasibility studies, feasibility Studies and business plan part of the planning of the project.

5.2.1.3.Phase 3 - Implementation

The infrastructure delivery systems and project management life cycle are expected to be in place. This is the core of the PMO as reflected in Figure 1.7 which illustrates the relationship between PMO and service delivery. Simply put, the PMOs role is to implement municipal infrastructure projects, to achieve a set of service delivery goals. This phase includes all the steps to design the project, issuing of tenders, and construction and commissioning.

5.2.1.4.Phase 4 - Service provision

The ultimate goal is service provision. One key element that goes with service provision at municipal or PMO level is operations and maintenance (O&M). The clarity should be created on the roles and responsibilities of the PMO in so far as O&M is concerned.

5.2.2. Legislative requirements

The legislative requirements were found to be one of the municipal dependent factors that may dictate the type of PMO suitable for the municipality. These legislations are the same across all the municipalities in South Africa. The primary governing legislations which the PMOs must adhere to are tabulated below.

Table 5-1: The nexus between legislations and PMO activities

Legislation	Legislation's application to PMO
Water Services Act 108 of 1997	Provides framework for the provision of water supply and sanitation services to the households
Public Finance Management Act 1 of 1999	Assist the municipality and the PMO to manage and control project finances.
Division of Revenue Act no 5 of 2004	Assist the municipality and PMO with the equitable allocation of revenue through sound planning and budgeting
Municipal Structure Act 117 of 1998	Assist in division of functions and powers between district and local municipalities which will enable the role of PMOs within a particular municipality.
Municipal Systems Act 32 of 2000	Provide principles, mechanisms and processes that are necessary to enable the municipality and the PMO to implement projects effectively and efficiently.
Municipal Finance Management Act of 2003	Works in collaboration with the Public Finance Management Act to ensure sound and sustainable financial management
Preferential Procurement Policy Framework Act 22 of 2000	Assist in ensuring that broader goals of socio-economic transformation are realised while implementing government's capital infrastructure projects.

5.2.3. Other requirements

In addition, the following documented requirements should also be adhered to:

Table 5-2: Documents required for establishment and operation of PMOs

Document	Application to PMO
MIG policy framework	Provide guidelines and strategies for implementing the MIG.
MIG guideline document	Provide guidelines for establishing and operating a PMO
Expanded public works framework (labour intensive objectives)	Provide guidelines for project implementation in line with government policies for decent work and sustainable livelihoods.
Code of Good practice for special public works	Ensure adherence to Basic Conditions of Employment Act
Municipality procurement and financial policies, regulations, processes, and procedures	Ensure adherence to the above mentioned legislations.
Municipality integrated development plan	Provide overall framework and coordination for the infrastructure development projects.

These are municipal policies, regulations or guidelines some of which form part of the municipal bylaws and are part of the documents accessed during the research period.

As one of the general requirements for the successful model and framework, at least one of the basic project management processes (see Table 2.3) should be adhered to in line with a particular body of knowledge. In this case, it has been demonstrated elsewhere in Figure 1.5 that municipal processes are somewhat aligned to the PRINCE2 framework. Figure 1.5 was also modified to cover other activities such as PPPs in the conventional process. So it has been proposed that in order to avoid a culture shock, it is imperative that the proposed framework that is being developed sustain its allegiance to the PRINCE2 framework. This is because if a completely different methodology is imposed without looking into the broader implications, then the proposed framework might prove to be stillborn.

Other general requirement that may need to be looked into is the organisational maturity level. Although no explicit maturity assessment was conducted on the three municipalities, the

maturity related questions asked revealed that most of the municipalities' project management maturity level was low, at least between level one and three in terms of Kerzner's (2001) project management maturity model (PMMM). Project management training may therefore be the most pivotal requirement for any project management model to be successful. At least a minimum requirement should be that a certified project manager must lead the PMO and for those that are already in the system, they must be obliged to undergo the certification training.

5.3. Proposed conceptual framework

In developing the improved or a new framework, focus should be placed on the above requirements and also on improving the current model. This section looks into what areas to improve on with regards to the current system, before presenting the proposed framework.

5.3.1. Improving the current model

Together with the three municipalities, the provincial MIG manager was also instrumental in issues pertaining to improving the current situation. There is not really any model within the municipal environment that integrates all aspects of project delivery at the moment except separate guidelines. As indicated in the previous sections, the position of the provincial MIG manager in this regard is that PMOs were designed to cater for all capital projects and therefore cannot be responsible for MIG related infrastructure only. This point of view is very important in assessing the positioning of the PMOs when formulating a model.

5.3.1.1. Implementation of all Capital Infrastructure

There was sufficient consensus throughout from the participants in all the municipalities that the PMOs should implement all capital infrastructures irrespective of whether they are MIG related or not. One unit should deal with all the capital infrastructure projects from all sorts of grants to achieve coordination. The unit should also include a planning unit and the O&M units. This should be strengthened to deal with all the capital projects regardless of their sources of funding. If this approach is adopted, it will definitely improve coordination and synchronisation of projects implementation. Efficient use of resources without duplication will also be realised if this approach is implemented. The inclusion of an O&M unit and the planning unit in the PMO will also strengthen the unit, in relation to planning, operational capacity and

effectiveness. Also, the unit must be actively involved in the training programme for young graduates.

5.3.1.2.Broadening the Activities of the PMOs

One of the key findings was the issue of political interference and ways and means have to be employed to minimise its impact. Due to the nature of the environment in which the PMOs operate, it might not be entirely possible for the PMO to be completely depoliticised, and or completely cushioned from political interference. However, it can be managed if there is a proper political desk within the municipality. This means that the PMO should have a supporting arm that focuses on non-core activities.

5.3.1.3.Organisational arrangements (structural review)

Of the three municipalities, the PMOs in two municipalities were focusing on MIG related projects. Van der Waldt (2009) also found that the majority of municipalities (89.4%) in the North West province only involve PMOs with MIG-related projects. Interestingly, Van der Waldt (2009) also found that most municipalities have a desire to move towards managing all capital projects thorough one office. This will definitely create synergy in municipal projects. Van der Waldt (2009) also adds that a PMO through its support function could thus be regarded as the "implementation arm" of the IDP. This development clearly shows maturity levels are improving and that the role of the PMO could be extended.

Positioning or location of the PMO was found to be one of the drivers of organisational structure in all the three municipalities (as stated in Section 4.3.4). Positioning and mandate are influenced by the capital budget. Therefore repositioning and authority are regarded as the factors for improvement. This move would mean the incorporation of all capital projects or IDP projects into the PMOs mandate. Such a move could enhance coordination between various departments.

5.3.1.4.Repositioning and authority of the PMOs

If the units are to implement all kinds of projects and not just MIG related projects, then their current positioning should be reassessed and this will improve their level of influence within

the municipality. In the Polokwane municipality for instance, the respondent believed there is no need for improving anything except only if the unit is upgraded to the directorate level on its own. If this proposal is realised, it will be more efficient as the service provider to all other directorates and effectively, all the project managers in other directorates will become part of the new directorate and that will strengthen the unit and abolish the current duplication. This assertion is in line with the proposals raised by the Mogalakwena PMO manager that there must be one unit dealing with all the capital infrastructure projects from all sorts of grants to achieve coordination. The Mogalakwena municipality PMO also believes that the proposed unit will be even stronger with the inclusion of a planning unit and the O&M units.

Secondly, if the PMO is elevated to a directorate level, it will be directly accountable for the entire project life cycle from the planning and development stage to operations and maintenance. An efficient PMO cannot only be limited to capital infrastructure only but it must also cover management of the assets that it has helped create in the first place. So, planning division, implementation division, and O&M division must all be the sub-divisions of the PMO. This sentiment is supported by the literature (such as Bolles and Hubbard 2015), which holds the view that the PMO must also perform duties of the project management centre of excellence, where project business management activities are disseminated. This aspect is deliberated in chapter one and two, where it is shown that the Project Management Centre of Excellence's (PMCoE) role doesn't just cover project oversight, but encompasses support to strategic planning in the high level management organisations, portfolio management and programme management, including planning, control and reporting (Do Valle, E Silva & Soares, 2008).

5.3.1.5.Performance of the PMOs

The performance of the PMOs should be measured by the expectations of the stakeholders and end-users of the infrastructure projects or other beneficiaries. For, example, in Mogalakwena, the service provider expressed concerns and did not hesitate to quickly point out that if the unit can pay them on time then they will be effective. According to these contractors, it seems the payment certificates take a longer time for processing by the PMO. So if the other implementation units such as roads and storm water, water and sanitation and special projects are combined into one PMO, the payment process will also be shortened as duplication will be avoided. All the project managers will be working for the PMO division and there will be a

dedicated single team that works on payment processing with one authorisation level performed by the PMO head.

Performance can also be improved by reinforcing the resource base and hiring qualified engineers, if the PMOs want to be successful in service delivery projects. Integrating various other units into one effective unit will also improve performance. This way, there will only be one or two site inspectors on site that will be sufficient and they should work together when giving site instructions. This must also improve the turnaround time for payments to contractors, furthermore the compliance issues cannot be raised only when it is time to pay but on a continuous basis from day one of project implementation.

### 5.3.2. Presentation of the proposed framework

The proposed model and framework are central to Desta, Root & Diederichs (2006)'s definition of a PMO. According to Desta, Root & Diederichs (2006) different levels, structures and definitions of PMOs are given in accordance with the maturity level of the organisation. It mainly depends on what the unit is intended to do. Desta, Root & Diederichs (2006) simply define a PMO as a series of levels where 'level-one PMO might support a single project, a level-two PMO would support several projects under the same programme, a level-three PMO would support a division or departments of an organisation with all its projects, a level-four PMO would support the organisation within its projects and a level-five PMO would be placed strategically at an executive level and would support business strategy and resource allocation at an enterprise level'.

Municipalities are the strategic 3rd tier of government with direct contact with end users of the infrastructure. So the PMOs should also be functioning as the strategic centres of excellence (performing support function), whose core mandates encompasses all capital projects. Having said that, the framework should take into account the fact that some municipalities may fail the assessment stage and not qualify to have PMOs, in which case, such municipalities may then follow the shared services model.

It has been indicated that even though most PMOs are only focusing on the MIG related ventures, there is strong desire across the stakeholders for the PMOs to be mandated to implement all capital projects (see Section 5.3.1.3). That way the PMOs will be functioning

optimally. The proposed conceptual framework therefore assumes that the PMOs should be fully mandated to implement all capital infrastructure within the municipality.

Figure 5.2 presents a proposed model based on the gap between the best practices as espoused in and what had been found in practice in the three municipalities. The theoretical concepts are developed from the theoretical framework as presented in Section 2.6.3. This framework should be used as the guideline for the establishment process of the PMOs. For those municipalities that already have PMOs, this model and these processes can be used for review purposes to identify any gaps that may be causing deficiencies during their operational period.
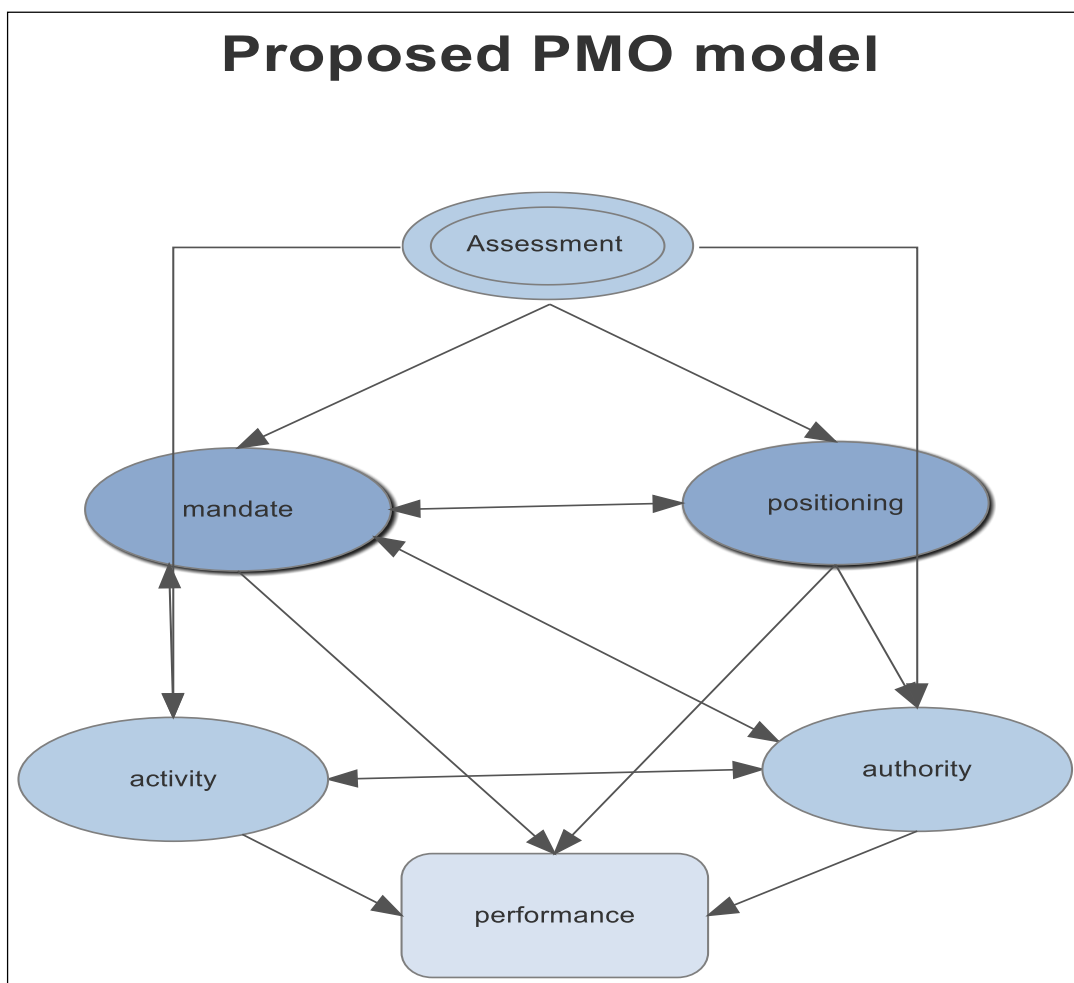
Figure 5-2: An overview of the proposed conceptual PMO model

5.3.2.1.The assessment phase

Assessment can be construed in two ways, an initial assessment or needs analysis that encompasses the details presented in this section, which covers the gap prior to establishment

or as the initial step for establishment and continuous assessment that may continue to take place way after establishment has taken place. That is to say, continuous assessment will overlap into the operational phase. Chapter two indicates that assessment should be done through a set of interviews and document reviews, to determine whether there is sufficient support from the executive level to implement the PMO. It is also essential to determine such things such as what the goals and objectives of the organisation are and most importantly, to determine at what stage of organisational growth in terms of project management maturity the organisation is (Bates (2003). This phase is therefore the most critical stage as the other aspects will heavily depend on the assessment feedback emanating from the process.

Section 4.4.3 presents key factors that were considered in establishing the PMOs within the three municipalities. From these factors, it can be deduced that there are major gaps as far as the assessment phase is concerned. For example, key factors such as the project management maturity level of an organisation and long term training requirements were not considered. The assessment phase should therefore cover detailed needs analysis that will be able to address the mandate, organisational strategies and objectives and a detailed determination report should be tabled for further discussion, regarding the establishment of the unit. An important consideration is that the assessment process should be made to align with the MIG project management cycle, as part of best practice standards. In linking theory and practice in order to narrow the gap towards more efficient PMOs, a more comprehensive assessment based on project management methodologies is a requirement. This approach will also assist to eliminate the experienced duplication of resources and/or technical arms.

The detailed gap/needs analysis report should cover the following elements:
   i.   The mandate (in line with organisational strategies and objectives)
  ii.   Project management maturity level
 iii.   Capacity of the organisation as a whole
  iv.   Resource capacity (including staffing and capital injection) and planning
   v.   Any factors that may impact the unit during implementation phase (such as equipment, space, staff availability, immediate training needs)
  vi.   Long term training requirements
 vii.   Best practice standards
viii.   Stakeholder relations

Also, in line with what has been found to be a pattern of common denominators (as shown in Section 4.6.2), which covers factors such political interference, delayed payments and legislative requirements, the assessment report should detail accountability and internal control systems to be put in place, for legislative compliance and improved administrative systems for payments.

Once the assessment is concluded, an assessment report must be tabled for decisions to be made. The report should recommend the approval or non-approval of the establishment of the unit, after having taken all the above issues into consideration. If the report recommends for not going ahead with the unit, as a result of serious gaps that perhaps still need to be addressed first (in line with issues listed above), then a conscious decision should be made that such a municipality may not have a PMO, for example as it is the case in the Capricorn district municipality. Such municipalities may prefer to use the shared services model. The shared services model allows a municipality with no capacity to utilise the PMO another municipality, in particular a district municipality (Ministry of Local Government, 2007).

In contrast if the assessment report approves a go ahead, then the process for developing a business plan with a clear mandate for the unit can be initiated. (See Figure 5.5).

5.3.2.2.Mandate

Key drivers of the mandate were found to be the capital budget, limitations of the unit, positioning and the activities. Once the assessment report is completed, the mandate of the required PMO should be defined in terms of these drivers. This process shall take place in the form of business plan development, which will entail the creation of a defined mandate with clear strategies and objectives. The business plan shall also assist in making a decision on whether the anticipated unit will have enough capacity to implement all capital infrastructure projects, or whether it will only be limited to MIG projects only. If after conclusion of the assessment and business plan, it is found that there isn't enough capacity for the unit, a decision can still be taken to utilise a shared services model. But if there is a decision to go ahead, then the core activity programme can now be initiated. The core activity model is shown as Figure 5.3. (Also see Figure 5.5 for the schematic process). Using the core activity model, a detailed work breakdown structure (WBS) for the mandate will have to be executed to achieve the mandate. This is because the mandate determines the activities or the actions of the unit.

5.3.2.3.Activities

The work breakdown structure (WBS) should be aligned with the core activities model as presented in Figure 5.3. Figure 5.3 presents the core activity model that unpacks the mandate of the units as per the findings that were obtained when determining the activities that should be undertaken by the PMO in order to achieve the mandate. In order for the PMO to be successful in the fulfilment of its mandate, especially if it is a full mandate which covers all capital infrastructure, it should be able to execute the enlisted key activities displayed in the second column in orange during the operational stage. If the PMO is capable to execute the enlisted activities, then improvements should be visible as shown in the blue block. The purple block (last column) shows a link between the mandate and the set of dependent factors that were found to be influential, or may dictate the type of project management office that is suitable for the municipalities. It must be noted that these activities also address what has been found to be the pattern of municipal dependent factors such as political interference, delayed payments and legislative requirements and other requirements.

Also, of greater importance was considering the adequacy or inadequacy of the units to perform their mandates. This consideration led to a more informed modelling process that caters for the reduction of the experienced challenges and where possible elimination of the internal disablers and failures that are commonly experienced by the PMOs.

The core activities model also takes into considerations the municipal processes and requirements enlisted in the preceding section. The work breakdown structure (WBS) will be guided by both the municipal processes and the requirements, while it is unpacked from the activity column. The WBS then guides the finalisation of the organisational structure, positioning strategy and the project implementation methodology. Once these are finalised, then the development of planning, O&M and operational strategies can also be concluded. The positioning strategy and the project implementation methodology forms part of the operational strategy. However, these strategies are live documents, which may need to be updated on a regular basis and will mainly be utilised during the operational phase.

Also highlighted on the core activity model is the activity column that shows activities such as continuous monitoring and evaluation, operation and maintenance (O&M), project management standards (project implementation methodologies), planning and many more.

These activities cut across the project life cycle and therefore the PMO in this regard is viewed as the being central to the implementation of projects from cradle to grave.
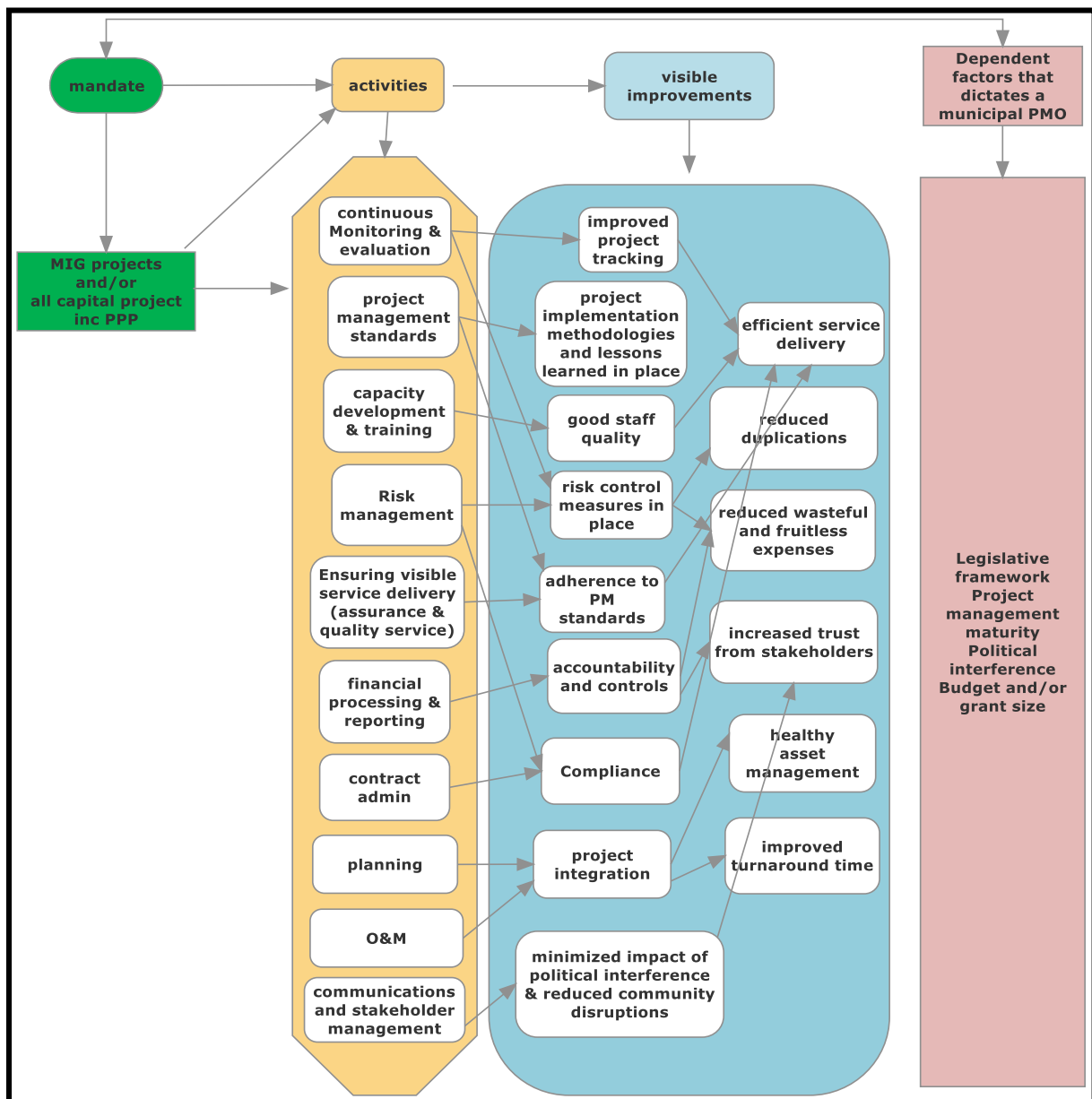
Figure 5-3: Core activity model for the municipal PMOs

5.3.2.4.Positioning

Upon completion of the assessment report, the position of the unit should be determined. The key dependent characteristics (as shown in Figure 2.14) would have been assessed during the assessment phase in conjunction with the mandate. Both the mandate and the positioning depend on each other and they are both derived from the assessment phase. While the mandate influences the activities and vice versa, the positioning influences the authority and also

depends on the activities and vice versa. Based on the assessment outcomes and the mandate, the decision concerning whether the PMO is placed as an executive directorate should be determined. While making such a decision, it must be borne in mind that it is the positioning that will influence the authority of the unit and that for the PMO to be effective, it must be acknowledged as an independent business unit functioning at the highest level of the enterprise (Bolles & Hubbard, 2015). This designation provides the assigned executive manager of the enterprise PMO with the authority, acceptance, adoption, and autonomy required to establish, monitor, and control the distribution of the resources needed to successfully utilise project business management best practices enterprise wide (Bolles & Hubbard, 2015).

5.3.2.5.Authority (operational stage)

The authority of the unit would become clear after the mandate, activities and the positioning have been determined. In fact, the authority of the unit will be realised during the operational stage. Bolles & Hubbard (2015) indicate that the position of a PMO within a hierarchical organisation establishes its degree of authority acceptance, adoption and autonomy. Where the unit is located determines its authority. What the unit does and aims to achieve also determines its authority. The activities and the authority of the unit depends on each other. The mandate, the positioning, the activities and authority have a strong influence towards the performance of the unit.

5.3.2.6.Performance (operational stage)

Authority and performance are experienced at the operational stages or phases. However, the performance of the unit is influenced by all four variables, namely; mandate, activities, positioning and the authority. Performance is measureable and will be realised from Figure 5.6 from the visible improvements column. Its dependent characteristics such as improved service delivery, increased efficiencies and end-user satisfaction may also be measured.

5.3.2.7.Linking the establishment and operational phases

Figure 5.4 shows a schematic presentation of how the five variables are linked. All five variables are either part of the initial assessment or part of the continuous assessment. Core activities however overlap in the two assessment areas as shown in Figure 5.4. It is clear that there are activities that takes place during the establishment process and cut across into

operational phase. For example, it had been indicated on the activities variable that some activities like developing of the planning and operational strategies are carried out during the establishment stage and carries on to the operational phase, as they become live documents. Some are continuous improvement activities that takes place throughout the phases. Based on this deduction, assessment therefore, transforms into a continuous improvement process that covers performance, relationships and the credibility assessment that should take place even during operational stage. As Bolles & Hubbard (2015) put forward the degree of measure of authority is determined by the unit's acceptance, adoption, and autonomy and its ownership of and the responsibility for, establishing, distributing, and supporting project management best practices somewhere within the enterprise.
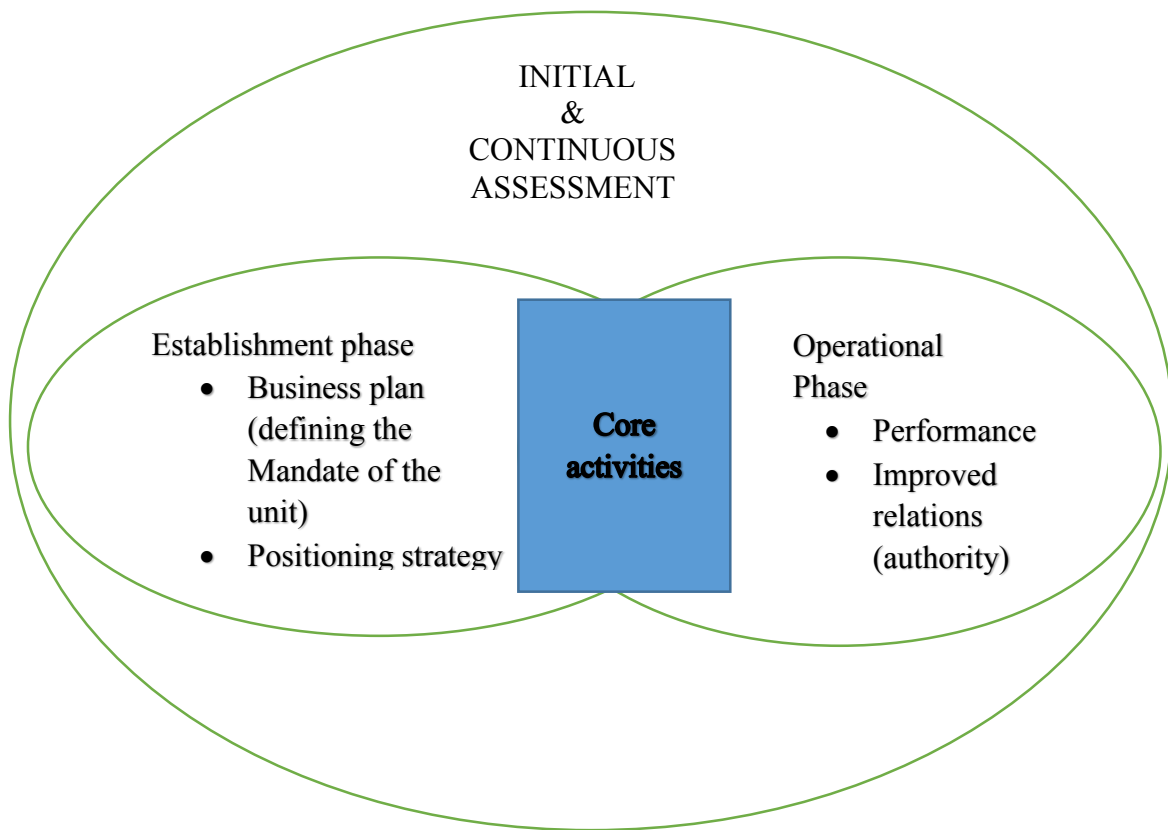
Figure 5-4: Linking the establishment and operational phases

5.3.2.8.The proposed framework

Figure 5.5 presents a summarised proposed framework for the establishment and operation of PMOs. The framework can be used as an establishment guideline from the assessment stage to the implementation and operational stage. All the stages and activities shown on the flow chart are clearly defined above.

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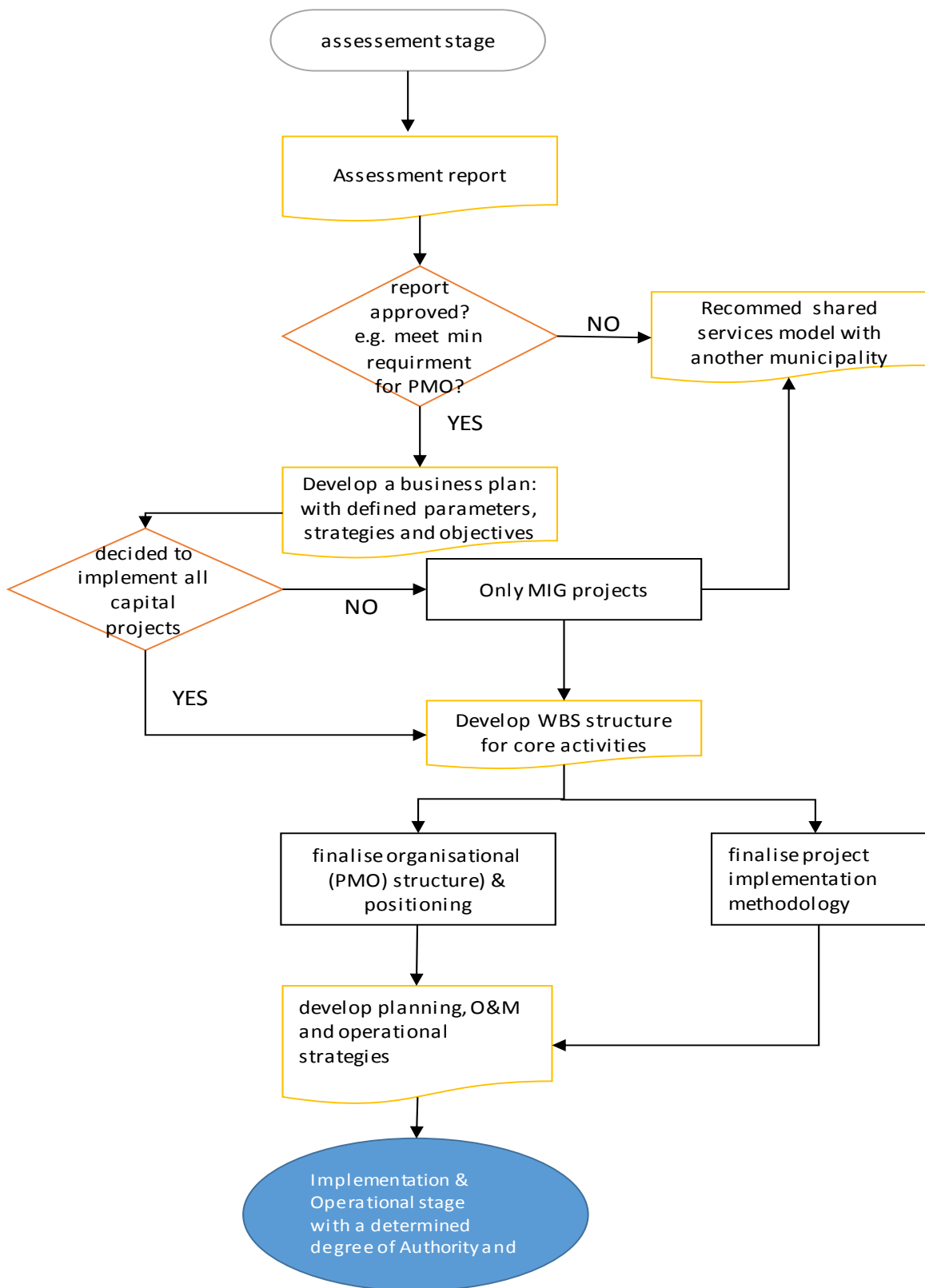
Figure 5-5: Proposed framework

5.4.Chapter summary

This chapter has presented the PMO model and framework and special attention was given to the municipal processes and requirements before presenting the proposed model and framework.

In developing a conceptual framework, the factors considered when establishing PMOs in the municipalities and expectations from stakeholders were highly considered. Issues such as having a dedicated team for all projects, having fewer inspectors on project sites, improved turnaround time for payments were factored into the development of the model and framework. Of greater importance was making sure that the any patterns of municipal dependent factors were also considered.

Eventually, an appropriate conceptual framework has been presented after careful study of both theory and the findings. The framework contributes to theory for facilitating the narrowing of the gap for PMO development in the municipalities. A schematic presentation of a process flow chat was also presented as a guideline for those that may want to initiate the establishment process.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1.Introduction

This research was aimed at investigating the effectiveness of the existing PMOs in selected South African municipalities. The objectives of the research was to analyse principles considered when establishing a PMO in the context of South African municipalities, analysing the existing PMOs with an intention of determine whether they are fit for purpose, identifying any factors that influence a typical municipal PMO and finally developing a conceptual framework for a more effective PMOs in these municipalities. The ultimate aim of the research study was to: *Develop a conceptual framework for the establishment and operation of PMOs in South African municipalities*.

Chapter one dealt with an overview of PMOs in general and in the public sector in particular, with attention given to public sector project management and South African municipalities. The gaps identified in the body of knowledge, problem statement, scope of research, expected contribution of the research and research aim and objectives were clearly articulated in this chapter.

Chapter two dealt with the theory and practice of PMOs. A detailed exploration of PMOs and their broader meaning was discussed in this chapter. Best practices for establishing and operating PMOs as well as an analysis of an effective PMO, while introducing various performance variables were also explored in this chapter. After a careful analysis, of theory and literature, the chapter was wrapped up with the conceptual model that was key in formulating the proposed framework.

Chapter three dealt with the research methodology. The research processes were first explored before selecting a research strategy for this study. The selected strategy was the case study with a multiple case study approach. The sampling methodology, data collection and research instruments were then defined. Data analysis techniques, issues of reliability and validity and limitations and ethical issues were also clearly defined.

The data analysis and findings are finally presented in chapter four. The chapter profiles the respondents who participated in the study, before presenting the results in line with each

objective. It then presented, discussed and analysed the factors that were considered in establishing PMOs in the three municipalities and any municipal dependent factors that may dictate a particular type of PMO for municipalities. Also an analyses relating to the adequacy of the PMOs in carrying out their mandates was carried out in this chapter.

Chapter five presented the proposed conceptual model and framework for PMOs. It first discussed the municipal processes and requirements that might be a prerequisite for establishing PMOs, before presenting the proposed conceptual model and framework. The proposed framework was the ultimate aim for the research and was dully developed, presented and discussed.

6.2. Conclusion

The literature review provided an overview of what is to be expected and identified gaps between theory and practice, in terms of what has been found in the three selected municipalities. The main gap that was found was that there is no clear conceptual framework for establishing PMOs and therefore the department of local government in developing an MIG guideline, did not have an appropriate or adequate source or guideline from which they could have drawn a relevant framework that could have properly guided the formation of these units in the municipalities. The framework with which the municipal PMOs was founded was inadequate in providing the appropriate guideline for establishing an effective PMO. In dealing with this problem, objectives were derived in order to achieve the aim of developing a conceptual framework for the establishment and operation of PMOs in the municipalities.

The first objective, which was to identify and analyse factors considered in establishing PMOs in the three municipalities was adequately dealt with by identifying, listing and analysing all the key factors considered in establishing the PMOs. In merging these factors with the best practices outlined through the theory and practice in chapter two, gaps were identified which indicate that the process followed by the department of local government when developing the MIG guidelines was flawed. Amongst other things the factors confirm the omission of crucial steps that need to be taken during establishment, such as the initial assessment or needs analysis. Project management maturity factor was not considered. No defined project management process group and no project implementation methodology that is used. All these factors were identified and brought into consideration in building the proposed framework.

The second objective was to analyse the level of fitness for purpose of the PMOs in the three selected municipalities. In order to deal with this objective, the adequacy of PMOs to carry out their mandates was scrutinised. This was done by identifying the key drivers of the municipal PMOs mandates, their achievements and challenges and whether they adhere to project management best practices. The capital budget, core activities, limitations due to capacity and strategic positioning of the units were found to be key drivers of the mandates. These helped to formulate the proposed framework. Most challenges, failures and negative perceptions that the PMOs faced were as a result of internal disablers that could be dealt with by identifying and dealing with the internal deficiencies of the system that were result of procedural wrongs that could be traced from the establishment stage. This analogy or approach assisted in finally formulating a framework that would deal with these system deficiencies.

The third and the last objective was to analyse patterns of municipal dependent factors that dictate the type of PMO that is suitable for the municipalities. This was approached in terms of grouping the factors that can be classified as common denominators across municipalities and the factors that dictate the typology of the municipal PMO, however these are unique or different in each municipality. The common denominators included political interference, legislative requirements and delayed payments. Whilst the latter is a result of internal system deficiencies, the two other denominators are external challenges that might be difficult to manage. However, the new proposed framework deals with these aspects holistically. The unique factors are also appropriately dealt with in the model during the initial assessment stage of establishment.

Finally, the aim was to develop a conceptual framework for the establishment and operation of PMOs in South African municipalities. It is demonstrated in the above paragraphs how this aim was achieved by dealing with each and every objective. A framework was finally developed to address the identified gaps and deficiencies. The OCG's (2009) benefit model or as shown in Figure 2.10, provided a gateway for the municipal PMO concept that will be more suitable for municipalities. The model and framework clearly show the functions being aligned to the outcomes and benefits as shown in Figure 2.11 and this has been tailored to suit different municipalities, as shown as part of core activity model in Figure 5.3. Figure 2.11 was tailored for the municipal environment because the municipal environment has unique set of characteristics that distinguishes it from the normal private sector PMOs. These characteristics

include, factors such as political interference and legislative requirements. Additionally, the OCG's benefit model lacks in the area of gap analysis when formulating a PMO. The model does not take into consideration key factors such as mandate, positioning, authority and performance as indicated in Figure 5.2.

So, the findings confirm the original expectations of the researcher and all the objectives were sufficiently addressed and the research aim was sufficiently answered through a proposed framework as presented in Figure 5.5 and supported by Figure 5.2. Therefore based on Figure 5.2 and 5.3, the municipal PMOs are expected to have similar characteristics. The research was therefore considered to be successful and all the objectives were sufficiently dealt with and the eventual framework was built based on the findings.

The main gap in knowledge is that there is no conceptual framework nor any model for establishing PMOs in the public sector, considering the fact that the public sector may have its own set of unique characteristics when compared to the corporate private sector has also been addressed.

6.3. Recommendations

The following recommendations are made:

a. *Assessment review for new and existing PMOs in line with the proposed framework*

Most municipalities are already have PMOs even though most of these PMOs are not working efficiently. For these municipalities, it is recommended that they carry out a thorough assessment review that will entail gap analysis, following the proposed framework and the guidelines provided in section 5.3.2 and summarised in Figure 5.5. These guidelines are suitable for both new and existing PMOs. For the new PMOs a step by step guideline provided should also be carried out. This is to assess attributes or aspects such as organisational maturity level of the organisation and the mandate of the unit to be established. These aspects have the capacity to influence the size and the positioning of the unit to be established. The mandate and/or the strategic objectives of the unit will influence the structure of the unit.

b. Empowering of PMOs to a directorate levels

It is recommended that a PMO will be more effective as a stand-alone directorate and its mandate should be considered to be beyond Municipal Infrastructure Grant (MIG) in order to gain more authority and improve performance. This is demonstrated by the developed framework which indicates the role of the PMOs and their expected performance outcomes. Once the unit's mandate is broadened, its usefulness, effectiveness and authority also increases and can no longer be positioned within other directorates, but becomes a directorate itself.

c. Effectiveness of the conceptual framework

 An initial assessment of needs or requirements is key to the success of the framework. The framework will be effective if the proper assessment review is conducted by the municipality when applying it. Stricter training requirements and the deployment of qualified management before and during the PMO operation on a continuous improvement basis will lead to the success of any initiative.

d. Generalisation of the findings and the conceptual framework

Generalisability can be defined as the extension of research findings and conclusions from a study conducted on a sample population to the population at large. While the dependability on this extension is not absolute, it has been made sure in this research that an ample range of attributes within the case(s) are examined. Secondly, common and/or similar attributes or denominators between the different samples/cases were found. Thirdly, most unique attributes or factors between the samples/case are internal factors which the individual municipalities have total control over and therefore may be readjusted to suit any requirement for the proposed framework.

The structural size of the municipality and the size of the capital budget will definitely influence the positioning and the mandate of the unit. A typical PMO should be able to address the core activities as listed in Figure 5.3 irrespective of whether the mandate is MIG focused only or undertakes all capital projects. However, if the unit's mandate is only limited to the MIG ventures, it doesn't have to be a directorate but rather be positioned within another directorate such as the technical directorate. This should be determined during the assessment stage as per

Figure 5.2. The model and the framework therefore should be applicable to any size of the municipality.

As the MIG guidelines are applied by all the municipalities and there are similar findings in the three municipalities across different categories, this framework will therefore be applicable to the three selected municipalities and can be applied in all other South African municipalities across different categories.

e. More research needed in the PMO area

The PMOs plays a vital role in the public sector/municipal environment as these are the most sensitive areas when it comes to capital expenditure for infrastructure development (service delivery). The researcher therefore recommends more research in the PMO field of project management, in particular in relation to the public sector. The further research can be more specific towards managing the challenges within the operational environment of the public sector PMOs. This research can be used as a starting point towards improving project management best practices within the context of PMOs in the municipal environment.

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Appendices

Appendix 1: Covering Letter

26 Apollo Street

Sterpark

Polokwane

0699

\<address of respondent\>:

\<date\>

Dear Sir/Madam

RE: Request to participate in a study by taking part in an interview on project management units in the municipalities

The purpose of this letter is to introduce myself and the above mentioned subject. My name is Pakeng Mohlala and I am undertaking a study in Project Management Units in South African municipalities.

This is in fulfilment of my doctoral degree with the School of Business Leadership, University of South Africa.

Your municipality has been selected for participation in the study as it suits the nature of this research and it is situated within the proximity of the researcher. I would therefore, kindly request you, on behalf of your municipality spend some 30 minutes of your time for an non-structured open ended interview on an agreed date depending on your availability.

The information that you may provide will remain confidential in the sense that you and your organisation will remain anonymous. However, when the study is completed, a seminal paper will be written where the results of the study will be contained.

Yours faithfully

Pakeng Mohlala

Doctoral student, School of Business Leadership, University of South Africa.

Appendix 2: Interview guideline/questions for Municipal Manager and the PMO manager

SECTION A: questions 1-3 addressing demographic information

1. What is your position in the organisation?
2. How many years have you been working in the municipal environment?
3. How many years of experience do you have in the current municipality?

SECTION B: Questions 4 – 6 addressing objective 1: To identify and analyse the
                            principles/factors considered in establishing
                            (Project Management Office) PMO in South African municipalities.

4. Where you part of the municipality's Project Management Office establishment process? If yes please take me through the process.
5. Briefly, what would you say are that founding principles/set of procedures followed in establishing the Project Management Office?

Possible follow up questions

    a. How factors such as positioning, activities (actions of the unit) and the performance impacts on the overall establishment process?

    b. Is there a specific project management methodology or guideline that is being used during the establishment process?

    c. When establishing the unit, does the organisational maturity play any role or is it being considered at all?

6. Do you think these principles you have mentioned are common in all other municipalities in South Africa?

SECTION C: Questions 7 – 12 addressing objective 2: To analyse the current municipal PMOs and their fitness for purpose.

7. What is the mandate of your Unit?

Possible follow up question

    a. How does the mandate influence the type of the unit that is should be?

8. What is the specific role played by your unit in project implementation?

Possible follow up questions

    a. How does the structure of the unit impacts on the unit's performance?

9. Would you regard your unit as a success or a failure? Why?

10. If you were given a chance to improve anything within your unit, what will that be?

11. Would you say the unit is achieving its objectives?

12. Do you think you are implementing the projects in line with project management best practices?

SECTION D: Questions 13 – 15 addressing objective 3: To identify and analyse any patterns of municipal dependent factors or characteristics that may dictate the type of Project Management Office that is suitable for the municipalities

13. How different is your unit from other units in other municipalities?

14. What do you think are the common denominators/factors in all other municipal units?

15. Are there any specific factors that are relevant to the municipal units?

SECTION E: Question 16 addressing objective 4: To develop a conceptual model or framework profile for PMO that will be suitable for most municipalities in South Africa.

16. How can you improve the whole model of municipal project management unit?

Appendix 3: Interview guidelines/questions for external service providers

SECTION A: questions 1-2 addressing demographic information

1. What is your role in the organisation?
2. How many years have you been working in the municipal environment?

SECTION B: Questions 3 – 5 addressing objective 2: To analyse the current municipal PMOs and their fitness for purpose.

3. Is the current Project management unit within the municipality functioning properly (namely; effectively and efficiently?)
4. What is the specific role played by the unit in project implementation?
5. Would you regard the unit as a success or a failure? Why?

SECTION C: Questions 6 – 7 addressing objective 3: To identify and analyse any patterns of municipal dependent factors or characteristics that may dictate the type of Project Management Office that is suitable for the municipalities

6. Have done work for different municipalities with project management units?
7. What do you think are the common denominators/factors in all other municipal units?

SECTION D: Question 8 addressing objective 4: To develop a conceptual model or framework profile for PMO that will be suitable for most municipalities in South Africa.

8. What are your expectations from the unit that is effective and efficient?

Appendix 4: Interview questions for the sponsors from the Ministry of Local Government

SECTION A: questions 1-2 addressing demographic information

1. What is your position in the organisation?
2. How many years have you been working for the Ministry?

SECTION B: Questions 3 – 5 addressing objective 1: To identify and analyse the principles/factors considered in establishing (Project Management Office) PMO in South African municipalities.

3. What role did you play in the establishment and operationalization of the municipal project management units?
4. Briefly, what would you say are that founding principles/set of procedures followed in establishing the Project Management Office?

Possible follow up questions

    4.1. How factors such as positioning, activities (actions of the unit) and the performance impacts on the overall establishment process?

    4.2. Is there a specific project management methodology or guideline that is being used during the establishment process?

    4.3. When establishing the unit, does the organisational maturity play any role or is it being considered at all?

5. Do you think these principles you have mentioned are common in all other municipalities in South Africa?

SECTION C: Questions 6 – 12 addressing objective 2: To analyse the current municipal PMOs and their fitness for purpose.

6. What is the mandate of each Unit?

Possible follow up question

    6.1. How does the mandate influence the type of the unit that is should be?

7. What is the specific role played by each unit in project implementation?

Possible follow up questions

    7.1.   How does the structure of the unit impacts on the unit's performance?

8. Would you regard the model as a success or a failure? Why?

9. If you were given a chance to improve anything on the model, what will that be?

10. Would you say the unit is achieving its objectives?

11. Do you think the municipalities are implementing the projects in line with project management best practices?

12. Would you say the model require an overhaul? Why/why not?

SECTION D: Question 13 addressing objective 4: To develop a conceptual model or framework profile for PMO that will be suitable for most municipalities in South Africa.

13. How can you improve the whole model of municipal project management unit?

Appendix 5: Interview guideline/questions for community member

SECTION A: questions 1- addressing demographic information

1. What leadership role do you hold in the community and municipality and for how long?

SECTION B: Questions 2 – 5 addressing objective 2: To analyse the current municipal PMOs and their fitness for purpose.

2. What are the expectations of the community from the municipality in terms of service delivery projects?
3. Does the municipality deliver satisfactorily on infrastructure projects?
4. Do you think they have adequate resources to implement projects successfully?
5. Will you put the blame squarely on the municipal officials/staff regarding the failures of the infrastructure projects?

SECTION C: Question 6 addressing objective 4: To develop a conceptual model or framework profile for PMO that will be suitable for most municipalities in South Africa.

6. How should the project be implemented successfully in your municipality?