



Cape Peninsula  
University of Technology

**Critical factors for effective project portfolio management of capital projects for a Western Cape municipality in South Africa**

by

**ELVIS MAHOTE**

**Dissertation submitted in fulfilment of the requirements for the degree Master of Technology: Business Administration in Project Management in the Faculty of Business and Management Sciences at the Cape Peninsula University of Technology**

**Supervisor: DR. L.E Jowah**  
**Co-supervisor:**

**District Six Campus**  
September 2022

**CPUT copyright information**

The dissertation/thesis may not be published either in part (in scholarly, scientific or technical journals), or as a whole (as a monograph), unless permission has been obtained from the University

## DECLARATION

I, ELVIS MAHOTE, declare that the contents of this dissertation/thesis represent my own unaided work, and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

---

**Signed**

---

**Date**

## ABSTRACT

The majority of service delivery demands can be fulfilled by successfully implementing capital projects and effectively monitoring capital projects portfolio management. In a multi-project environment, such as that of municipalities, where service delivery is prioritised, capital project delivery must be constantly improved. Companies are attempting to deliver a portfolio of projects rather than just one project despite the fact that municipalities are struggling to recruit enough personnel to deliver these massive capital projects in the face of increasing demand and resource constraints.

The aim of the study is measuring the effectiveness of the project, programme and portfolio management processes in meeting strategic objectives as well as identifying the key success factors in the execution of capital projects. A municipality in the Western Cape has been designated as the local government implementing the portfolio and programme management as an operational framework in capital project delivery. Current literature lacks empirical evidence of the levels of implementation, functionality, and success of the Project Portfolio Management approach in South African local governments. The researcher applied a mixed method approach to the investigation, integrating both qualitative and quantitative methods. Participants, on the other hand, were given an open and closed ended questionnaire with the goal of ensuring that the data obtained can be analysed in a way that produces useful and trustworthy results. A consent letter was provided, and respondents were allowed to withdraw from the study at any stage.

It is important to emphasise that the survey results show that survey participants are well educated and come from diverse departments, age groups, and have extensive experience in the project portfolio management field. In the Western Cape municipality portfolio management is perceived as very successful by an overwhelming majority of respondents (81%), slightly successful by 16%, and unsuccessful by 3%. As a result, it is critical for senior management to support project portfolio management methodology to achieve organisational strategic goals and ensure the success of project portfolio management (PPM). PPM techniques and managerial styles must be carefully tailored to the organisation's qualities and complexities, just as the strategy must be tailored to the firm's characteristics.

## **ACKNOWLEDGEMENTS**

### **I wish to thank:**

- Dr Larry, Enoch, Jowah, my supervisor. I am truly grateful to have you as my supervisor thank you for your dedication and support throughout this Dissertation.
- Yanga Gwebityala, thank you for the support and always dedicating your time in assisting students.
- To my Mom, Nosisi Evelyn Mahote, thank you for your prayers and for being there for me when I needed motivation

## **DEDICATION**

My late father, Msokoli Zeyile Mahote, is honoured with this study. Due to the inequitable system of the past, my father did not attend school. Regardless, he pushed and motivated me to get a tertiary education. I will forever be grateful for the opportunity. I am sure he is smiling in heaven.

## Contents

DECLARATION.....	ii
ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF FIGURES.....	xi
LIST OF TABLES.....	xii
GLOSSARY .....	xiii
CHAPTER ONE.....	1
INTRODUCTION, BACKGROUND AND PURPOSE OF THE STUDY.....	1
1.1 Introduction.....	1
1.2 Background .....	1
1.3 Problem statement.....	3
1.4 Rationale and significance of the study .....	3
1.5 Aim and objectives of the study .....	4
1.5.1 Primary objectives.....	4
1.5.2 Secondary objectives.....	4
1.6 Research questions/hypotheses.....	4
1.7 Literature review .....	5
1.8 Linkage of Project, Programme and Portfolio Management .....	5
1.8.1 Role of portfolio managers in driving the portfolio management.....	7
1.8.2 The obstacles that prevent the improvement of an organisational project .....	9
1.9 Definition of key concepts.....	11
1.10 Research paradigm, approach and methodologies.....	11
1.10.2 Research approach.....	<b>Error! Bookmark not defined.</b>
1.10.3 Research design.....	12
1.11 Demarcation .....	16
1.12 Research methodology.....	16
1.13 Target population.....	17
1.14 Sampling and sample size .....	17

1.15	Data collection instrument.....	17
1.15.1	Primary data collection.....	18
1.15.2	Secondary data collection.....	<b>Error! Bookmark not defined.</b>
1.16	Data coding and analysis.....	18
1.17	Data validity and reliability .....	18
1.18	Limitations of the study .....	19
1.19	Ethical consideration.....	19
1.20	Chapter classification.....	19
1.21	Conclusion.....	20
CHAPTER TWO .....		21
PORTFOLIO PROCESSES – DIFFERENT PROCESSES AND IMPACT ON PROJECT EXECUTION SUCCESS.....		21
2.1	Introduction .....	21
2.2	Strategic objectives .....	22
2.3	Portfolio Strategic Management and Alignment.....	22
2.4	Factors that relate to the strategic management success of project portfolios .....	25
2.4.1	Obtaining Strategic Alignment.....	25
2.4.2	Balancing a Portfolio .....	25
2.4.3	Project efficacy .....	26
2.4.4	Strategic flexibility .....	26
2.5	Monitoring and Controlling Process Group .....	30
2.5.1	Portfolio periodic reporting and review .....	30
2.5.2	Strategic change .....	30
2.5.3	Portfolio processes and impact on project execution success .....	31
2.6	Strategic Portfolio Management .....	31
2.6.1	Inventory.....	32
2.6.2	Analyse.....	32
2.6.3	Align.....	32
2.6.4	Manage.....	32
2.7	Governance Management process.....	33
2.8	Creating a portfolio management strategy .....	33

2.9 Performance management process.....	35
2.9.1 Creating a portfolio performance strategic plan.....	35
2.9.2 Supply and Demand Management.....	36
2.9.3 Defined goals within portfolio management plans .....	36
2.9.4 Communication management process.....	36
2.10 Portfolio information systems on portfolio interaction management .....	37
2.11 Risk management process .....	38
2.12 Portfolio Strategic Alignment .....	39
2.13 Resource Management .....	39
2.14 Knowledge management and Communication management.....	39
2.15 Leadership .....	40
2.16 Portfolio, Programme and Project Lifecycles .....	41
2.17 Portfolio Management Stage Gates Approach.....	43
2.18 Conclusion .....	46
CHAPTER THREE .....	47
PORTFOLIO MODELS, USE/APPLICATIONS, RELATIONSHIP TO PROJECT MATURITY AND EXECUTION SUCCESS .....	47
3.1 Introduction .....	47
3.2 Project portfolio management (PFM) theories .....	47
3.3 Obstacles that prevent the improvement of an organisational project management ...	57
3.4 Leadership skills of an effective portfolio manager .....	58
3.5 The role of effective portfolio manager .....	59
3.6 Challenges of PPM.....	61
3.7 Inadequate portfolio level activities .....	62
3.8 Portfolio competencies and methods.....	62
3.9 Lack of strategic connections .....	63
3.10 Resource management .....	63
3.11 Information management.....	64
3.12 Best practices and benefits of effective PPM.....	65
3.13 Effective Project Portfolio Management Best Practices .....	66
3.14 Benefits of applying effective Project Portfolio Management.....	67



3.15 Portfolio success .....	68
3.16 Success Criteria vs. Success Factors.....	69
3.17 Four main categories of success factors.....	70
3.18 Conclusion .....	73
CHAPTER FOUR .....	74
RESEARCH DESIGN, RESEARCH METHODOLOGY POPULATION, SAMPLING, SAMPLE SIZE, DATA COLLECTION INSTRUMENT AND DATA COLLECTION METHODS.....	74
4.1 Introduction .....	74
4.2 Research design .....	74
4.3 Research methodology.....	79
4.3.1 Types of research methodologies .....	79
4.4 Target population .....	81
4.5 Sampling method, frame and sample size .....	81
4.6 Data collection Instrument .....	82
4.7 Creating the research instrument.....	84
4.8 Likert scale on a background.....	84
4.9 Considerations for survey length .....	85
4.10 Data collection.....	85
4.11 Data analysis.....	86
4.12 Data validity and reliability .....	87
4.13 Ethical consideration .....	87
CHAPTER FIVE.....	90
DATA REPORTING, ANALYSIS AND INTERPRETATION OF THE FINDINGS.....	90
5.1 Introduction .....	90
5.2 SECTION A: BIOGRAPHICAL INFORMATION.....	90
5.3 SECTION B: LIKERT SCALE .....	101
5.4 SECTION C: OPEN ENDED SECTION.....	133
5.5 Chapter summary.....	142
CHAPTER SIX.....	143
RESEARCH FINDINGS AND RECOMMENDATIONS AND CONCLUSIONS.....	143
6.1 Introduction .....	143

6.2 Summary of objectives of previous chapters .....	143
6.3 Summary of findings, conclusions and recommendations .....	144
6.3.1 SECTION A – BIOGRAPHY.....	144
6.3.2 SECTION B – THE LIKERT SCALE.....	146
6.3.3 SECTION C - OPEN ENDED QUESTIONS.....	153
6.4 The summary of findings and recommendations: .....	159
6.5 Conclusion .....	161
6.6 Limitations of the study.....	162
6.7 Recommendations for future studies .....	163
REFERENCES.....	164
APPENDIX A: ETHICAL CLEARANCE .....	178
APPENDIX B: CONSENT LETTER FROM MUNICIPALITY .....	179
APPENDIX C: SURVEY REQUESTING PARTICIPATION.....	181
APPENDIX D: QUESTIONNAIRE .....	182
APPENDIX E: TURNITIN REPORT .....	188
APPENDIX F: EDITING CERTIFICATE .....	189

## LIST OF FIGURES

	PAGE NO.:
Figure 1.1: Portfolio Management in a Contextualised Settings	6
Figure 2.1: Portfolio Strategic Management and Alignment	20
Figure 2.2: Strategic Relationship among Portfolios, Programmes, and Projects	21
Figure 2.3: Groups of PMI Standardised Processes	25
Figure 2.4: Portfolio Process	28
Figure 2.5: Portfolio, Programme and Project lifecycle	39
Figure 2.6: Portfolio Programme and Project 'fit for purpose' lifecycle	41
Figure 3.2: Five Stages of Portfolio Maturity, adapted from	47
Figure 3.3: Organisational Project Management Maturity Model Overview	48
Figure 3.4: Portfolio, Programme and Project Management maturity Model	50
Figure 4.1: Conceptual framework is divided into the quantitative and qualitative	73
Figure 5.1: Gender specification	83
Figure 5.2: Age Range of the respondents	84
Figure 5.3: Position of Employment	85
Figure 5.4 Level of Education	86
Figure 5.5: Years of Experience in Project Management	87
Figure 5.6: Years of Experience Using Portfolio Management Model	88
Figure 5.7: Designated Portfolio Manager(s)	89
Figure 5.8: Knowledge Level on Strategic Objectives	90
Figure 5.9: Number of Projects within a Portfolio	91
Figure 5.10: Department in the organisation	92
Figure 5.11: PPM Perceived Success	93
Figure 5.12: Stakeholder Management	94
Figure 5.13: Effective Portfolio Management Process	95
Figure 5.14: Project processes and corporate strategic planning processes	96
Figure 5.15: Maximising Portfolio optimal mix of projects	97
Figure 5.16: Effectiveness of risk management	98
Figure 5.17: Portfolio Monitoring and Evaluation	99
Figure 5.18: Projects Selection	100
Figure 5.19: PPM Perceived Performance	101
Figure 5.20: Importance of alignment with strategic objectives	102
Figure 5.21: Projects aligned with Corporate Strategic Objectives	103
Figure 5.22: Effective Project Portfolio Management	104
Figure 5.23: Alignment Process	105
Figure 5.24: Impact on Strategic Objectives	106
Figure 5.25: Benefits Tracking	107
Figure 5.26: Resource Performance Tracking and Utilisation	108
Figure 5.26: Portfolio Performance	109
Figure 5.26: Individual Project Performance	110
Figure 5.27: Portfolio Performance to Achieve Strategic Objectives	111
Figure 5.28: Project Governance	112
Figure 5.29: Decision Making	113
Figure 5.30: Portfolio Achievement	114
Figure 5.31: Synergies	115
Figure 5.32: Portfolio Budget Monitoring	116
Figure 5.33: Stage Gate Reviews	117
Figure 5.34: Project Selection Process	118
Figure 5.35: Portfolio Balance	119
Figure 5.36: PPM Training	120
Figure 5.37: Organisational Structure	121
Figure 5.38: Single Project vs Portfolio of Projects	122
Figure 5.39: Trainings on Strategic Goals	123
Figure 5.40: PPM Influence	124

## LIST OF TABLES

	PAGE NO.:
Table 2.1: Stage Gate Focus Areas	42
Table 3.1: The P3M3 threads	50
Table 3.2: The P3M3 Process Perspectives	51
Table 3.3: Portfolio, Programme and Project Management Maturity Model Threads	52
Table 3.4: Most significant characteristics of effective and ineffective project	56
Table 3.5: Ten most important skills and competencies for effective portfolio manager	56
Table 3.6: PPM Challenges (no particular order)	58
Table 3.7: A summary of the key PPM challenges	61
Table 3.8: Collection of recommended practices along PPM path	64
Table 4.1: Qualitative vs Quantitative	73
Table 4.2: Potential advantages and disadvantages of Questionnaire	76
Table 5.1: Critical success factors for effective project portfolio execution	125
Table 5.2: Project portfolio management best practice at a Western Cape Municipality	126
Table 5.3: Common mistakes made by organisations on project portfolio management	127
Table 5.4: Obstacles that prevent the improvement/maturity of organisational project portfolio management	128
Table 5.5: Importance of budget expenditure vs meeting the organisation's strategic goals	129
Table 5.6: Impact of project portfolio management system in driving projects success	130
Table 5.7: The likes and dislikes about project portfolio management	131
Table 5.8: Public representatives influence on selection of project to be included in the portfolio	132
Table 6.1: Project Portfolio Management as a process	137
Table 6.2: Portfolio Strategic Alignment	139
Table 6.3: Project Portfolio Management Practices	140
Table 6.4: PPM Effectiveness	141
Table 6.5: Portfolio Balance and Monitoring	142
Table 6.6: Critical success factors for effective project portfolio execution	144
Table 6.7: Project portfolio management best practice at a Western Cape Municipality	144
Table 6.8: Common mistakes made by organisations on project portfolio management	145
Table 6.9: Obstacles that prevent the improvement/maturity of organisational project portfolio management	146
Table 6.10: Is spending money on the budget more important than meeting the organisation's strategic goals?	146
Table 6.12: The likes and dislikes about project portfolio management	148
Table 6.13: Public representatives influence on selection of project to be included in the portfolio	149

## GLOSSARY

PPM:	Project Portfolio Management
PMO:	Project Management Office
P3M3:	Portfolio, Programme and Project Management Maturity Model
PM:	Project Manager
PMBok:	Project Management Body of Knowledge
PMI:	Project Management Institute
MPT:	Modern Portfolio Theory
APM:	Association of Project Management

## CHAPTER ONE

### INTRODUCTION, BACKGROUND AND PURPOSE OF THE STUDY

#### 1.1 Introduction

Local government resources are becoming deficient, internal and external environments are becoming increasingly unusual, and change is happening faster. Thousands of South Africans, including immigrants, are relocating to cities to be closer to job opportunities. This has a negative impact on municipal resources in metropolitan areas. Therefore, organisations must accomplish more with less resources while yet improving their capacity to handle challenges successfully. Community service delivery unrest is on the rise, which indicates that demand for services is high. The majority of service delivery demands can only be met by implementing successful capital projects and having the municipality monitoring projects in an efficient and effective manner.

According to Oosthuizen (2017:5), Project Portfolio Management (PPM) is seen as a solution for managing the complexities of multi-projects. This provides competitive advantage, business strategy, balancing portfolios, maximising value, and ensuring resource adequacy. The municipality considers PPM approach as a practical solution to the underspending of capital budget, poor planning, and project governance. Oosthuizen (2018:5) opines that if the PPM model is implemented correctly, it can mitigate project execution failure. Thus, the use of PPM model is considered a panacea to the reduction of project failure (Salameh, 2014:52-74). This study focuses on the role played by project portfolio management approach in the execution of municipality capital projects. Much emphasis is put on these projects as they assist the local government in the attainment of their constitutional obligations.

#### 1.2 Background

Birgisson (2012:6-11) states that in a multi-project environment similar to that of municipalities, which is service delivery driven, a constant improvement of capital project delivery is required. Organisations are attempting to deliver a portfolio of projects rather than just one project even though they are struggling to recruit sufficient personnel to deliver these massive programmes in the face of growing demand and greater resource restrictions (Kaiser, El Arbi, & Ahlemann, 2015:126-139). In reaction to the environmental changes, project management has seen an increased use as a technique of delivering both products and transformation within organisations. Organisations are confronted with an environment that is increasingly complex, yet interdependent, as a result of the ever-increasing number of projects, necessitating a consolidated perspective of projects and investments. This has resulted in a number of critical needs, including, but not limited to:

Identifying and evaluating the right projects for selection is the first step. Evaluating Evaluate and managing manage the selected projects chosen throughout the delivery phase while racking identifying and evaluating the actual real benefits of the projects.

Portfolio management provides a broader perspective beyond traditional project management since it emphasises a collective reaction to organisational demands during project planning and execution (Srivannaboon & Munkongsujarit, 2017: 45). Oosthuizen (2017:16) is of the opinion that projects are naturally added to and withdrawn from the project portfolio in a knowledgeable project portfolio management environment based on their overall benefits to the organisation, its stakeholders, and strategic objectives. Many studies on project portfolio management have focused more on project management style and less on effectiveness of portfolio and programme management in meeting organisation strategic objectives. Project Management Institute (2013:5) argues that although project portfolio management is significantly growing in different business organisations, research on effectiveness of PPM is still limited.

Effectiveness has not been clearly defined and critical factors contributing to portfolio management effectiveness in meeting strategic objectives has not been thoroughly investigated. As a result of lack of research, it has led to project managers and practitioners continuing with the PPM approach even though it has not been measured as to its effectiveness and the impact it has in meeting strategic objectives in the delivery of successful capital projects (Patanakul, 2015:1084-1097). Enoch's (2013:19) study revealed gaps in existing literature related to the relationship between project portfolio and delivery of successful capital projects. This study seeks to add to the existing literature of capital project portfolio and team members' delivery successes which ultimately influence the performance of targeted municipalities. The focus of this study is to identify the key drivers for an effective portfolio management in meeting the strategic objectives on delivery of capital projects as well as to establish the link between portfolio management processes and techniques, and improvements in the performance or delivery of successful projects.

This is intended to provide a strategic alignment of the individual and collective effect of projects with strategic goals and objectives of the company, so that informed decisions can be made about those projects (Enoch, 2013:19). In other words, measuring the effectiveness of the portfolio and programme management in meeting strategic goals as well as identifying those key success factors in the execution of capital projects. A municipality in the Western Cape has been designated as the local government adopting the portfolio and programme management operational model in capital project delivery.

### **1.3 Problem statement**

Oosthuizen (2017:5) demonstrates in research findings that there is a shortage of empirical evidence on the use and effectiveness of project portfolio management techniques and strategies in South African municipalities. To address the research gap, this study lays the groundwork for an empirical study to investigate the relationship between PPM implementation, effectiveness, and organisational success in achieving the strategic goal of PPM. Failure to deliver capital projects that are aligned with the strategic objectives has a negative impact on the service delivery to the communities and it has direct effect on job creation, economic stability, generation of revenue, social welfare, basic services, investors' confidence, tourism and safety of the residents of Cape Metropolis.

Serrador and Turner (2015:28-42) states, despite the fact that various experts have claimed that meeting schedule, scope, and budget criteria, also known as 'project efficiency,' is not a full measure of project success. The PMBOK guideline recommends broader indicators of success; however, no empirical research has been conducted to assess the relationship between project portfolio management and overall project success in the South African municipal setting. The purpose was to correct such an omission (Abubakar, Feng, Dalibi, Li, Zheng, & Cao, 2018:63).

According to Olusola, Madugu, Abdul-Manaf and Dharmadasa, (2016: 16) Capital project implementation is critical for every nation's progress. The pace of any nation's or municipality's economic growth may be evaluated in many ways through the construction of physical infrastructure such as buildings, water and sewer connections, roads, and bridges, which are known as capital projects. Buys and Stander (2010:59-68) unequivocally state that although PPM has been well researched, current literature lacks empirical evidence on the levels of employment, functionality, and success of the Project Portfolio Management approach in South African local government (Buys & Stander, 2010: 59-68). This study seeks to plug that gap.

### **1.4 Rationale and significance of the study**

The broad research objective of this research was to establish a suitable framework for Identifying key drivers in project portfolio management on delivery of successful and effective capital projects that are aligned with strategic objectives. This study is to assist municipalities in adopting project portfolio management model and identification of key contributing success factors in the drive of capital investment. It will benefit organisations to identify the value of having the right leader in the right place, assess the role of portfolio managers and project managers within a portfolio to achieve strategic goals. The findings of this research will



contribute to the relevant research knowledge body, and it is to assist other researchers who desire to conduct potential portfolio management research. Buys and Stander (2010:59-68) state that projects must be included in the portfolio depending on how well they connect with the company's goals. The hope is that aligning the project portfolio with the organisation's strategic aim will result in enhanced strategy delivery.

### **1.5 Aim and objectives of the study**

The aim of this study was primarily to focus on operational issues in the management of project portfolios within this selected city. The primary purpose would be to seek to understand better the operation problems considering the “perceived” high failure rate of service delivery projects.

#### **1.5.1 Primary objective**

The primary objective of this research is identifying critical factors for effective project portfolio management of capital projects for a Western Cape municipality.

#### **1.5.2 Secondary objectives**

These objectives are descendants of such primary objective, assisting/leading the study to be conducted, these are:

- To identify the key drivers in portfolio management in effective capital projects
- To examine the role and impact of portfolio managers in driving the portfolio management towards achieving organisation strategic objectives.
- To determine the maturity of project portfolio management method applied.
- To assess obstacles that prevent the improvement of an organisational project.
- To determine the variables that are correlated with the efficiency of managing strategic intention through project portfolios.

### **1.6 Research questions**

- What are the key drivers in portfolio management in effective capital projects?
- What is the role and impact of portfolio managers in driving the portfolio management towards achieving organisation strategic objectives?
- What are the models of maturity level of the project portfolio management?
- What are the obstacles to the improvement of an organisational project?
- What are the factors that correlate with the efficiency of managing strategic intention through project portfolios?

## **1.7 Literature review**

### **What is Portfolio Management?**

Portfolio management is defined or explained in many ways however, in all the definitions there are common key words. Salameh (2014:52-74) describes portfolio management as a gathering of components (i.e., programmes, projects, and operations). These are grouped together to support efficient management of that work to reach critical competitive destinations. Project Management Institute (PMI) standard fundamentally agrees that the aim of portfolio management is to make sure that resources are allocated to projects and programmes according to priority and that the management of the portfolio is compatible with and in line with organisational strategies (PMI, 2013:5).

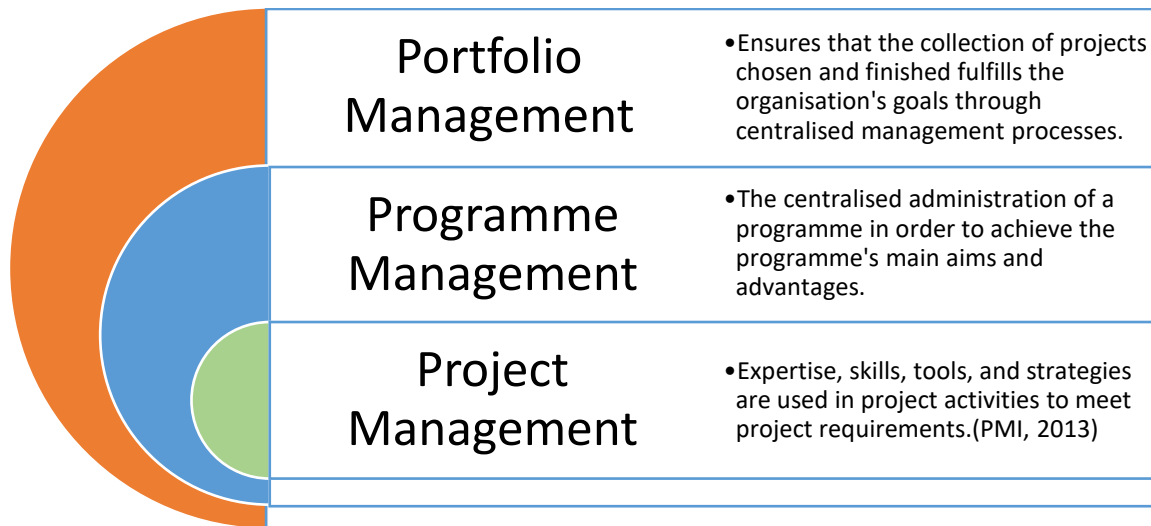
One of the most significant management roles in today's business is portfolio management. The strategy adopted to managing the portfolio of projects has a direct impact on the company's ability to achieve its strategic goals (Kononenko & Kpodjedo, 2019: 34-35). On the other hand, PMI (2017) does not differ with the current definitions however, they expand that portfolio management is a collection of projects, programmes, and other work that has been grouped together to make it easier to manage that work effectively and achieve long-term corporate goals (PMI, 2017:5). After reading numerous researchers' definitions of project and portfolio management, one can conclude that the definition is limited.

Commonly differentiating between a portfolio of project, programme, and project appears as a predicament, since these words are regularly misunderstood. Most writers also characterise a programme as being a project portfolio. However, that certainly is not helping to clear up the confusion. Nonetheless, knowing the contrast between venture portfolios, programmes and ventures is vital, since each one features a special part to play. They need to be overseen differently if the plan of the organisation is to be converted into practice effectively (Steyn, 2015: 2). It will be a disservice to the readers if the study would not cover the differences, characteristics, and correlations between project, programme, and portfolio.

### **1.8 Linkage of Project, Programme and Portfolio Management**

Each project in a portfolio is evaluated in the context of the other projects as well as the organisation's strategy and goals (Voss & Kock, 2013: 847-861), as shown in Figure 1.1. The relationship between projects, programmes, and the portfolio is found in scientific literature (Steyn, 2015:2). However, PMI (2017a:5) indicates that project, programme, and portfolio management fall under the same umbrella of knowledge. Steyn (2015: 2) postulates that a better way to maintain a strategic distance from equivocality is to think in terms of a progression of pyramids. It is necessary to start with an enterprise's strategy before

concentrating on project portfolios, programmes, and initiatives. The corporate strategy presents a vision of where in the future the company will be. Therefore, the company vision is at the top of the pyramid. In practice terms, project management centres on ‘undertaking projects right’ and extend portfolio management concentrate on ‘undertaking the proper projects’ (Mir & Pinnington, 2014: 202–217), as shown in Figure 1.1:



**Figure 1.1: Portfolio Management in a Contextualised Settings**  
(PMI, 2017:5)

PMI (2017:7) enlightens the relationship that project, programme, and portfolio management have one thing in common: they all aim to provide value to the organisation and its stakeholders; projects and programmes by efficiently delivering products and change to the organisation, and Project Portfolios do this by effectively selecting the best projects to undertake. According to Oosthuizen (2017:15) portfolio management integrates projects and programmes into corporate strategy by ensuring that the best project to execute is selected. Projects provide products, while programmes relate to corporate strategy and provide value or goals in all areas of business. Alexandrova (2018:74) mentions that portfolio management allows one to align programmes and projects with the organisation’s strategy. Programmes and projects, on the other hand, focus on strategic benefits and product delivery.

**Table 2.1: Comparison overview between Project, Programme and Portfolio**  
(PMI, 2017a:5)

Characteristics	Project	Programme	Portfolio
Definition	A project is a temporary endeavour undertaken to create a unique product, service, or result.	A programme is a group of related projects, subsidiary programmes, and programme activities that are managed in a	A portfolio is a collection of projects, programmes, subsidiary portfolios,

		coordinated manner to obtain benefits not available from managing them individually.	and operations managed as a group to achieve strategic objectives.
Scope	Narrow scope with specific deliverables, outputs focused.	Programmes have a scope that encompasses the scopes of its programme components. Programmes produce benefits to an organisation by ensuring that the outputs and outcomes of programme components are delivered in a coordinated and complementary manner.	Portfolios have an organisational scope that changes with the strategic objectives of the organisation.
Change	Project managers expect change and implement processes to keep change managed and controlled. Project managers progressively elaborate high-level information into detailed plans throughout the project life cycle.	Programmes are managed in a manner that accepts and adapts to change as necessary to optimise the delivery of benefits as the programme's components deliver outcomes and/or outputs.	Portfolio managers continuously monitor changes in the broader internal and external environments.
Management	Project managers manage the project team to meet the project objectives.	Programmes are managed by programme managers who ensure that programme benefits are delivered as expected, by coordinating the activities of a programme's components.	Portfolio managers may manage or coordinate portfolio management staff, or programme and project staff that may have reporting responsibilities into the aggregate portfolio.
Monitoring	Project managers monitor and control the work of producing the products, services, or results that the project was undertaken to produce.	Programme managers monitor the progress of programme components to ensure the overall goals, schedules, budget, and benefits of the programme will be met.	Portfolio managers monitor strategic changes and aggregate resource allocation, performance results, and risk of the portfolio.
Success	Success is measured by product and project quality, timeliness, budget compliance, and degree of customer satisfaction.	A programme's success is measured by the programme's ability to deliver its intended benefits to an organisation, and by the programme's efficiency and effectiveness in delivering those benefits.	Success is measured in terms of the aggregate investment performance and benefit realisation of the portfolio.

### 1.8.1 Role of portfolio managers in driving the portfolio management

## **What is the role and impact of portfolio managers in driving the portfolio management towards achieving organisation strategic objectives?**

According to Rajegopal (2013:14), particular duties must be specified in order to undertake good project portfolio management. One of these is governance, which is concerned with senior management's decision-making obligations in areas such as approved projects, prioritization, resource distribution, progress monitoring, and so on. Furthermore, management's role in project management should be defined, since this can ensure that the leadership system is under control. This implies that the institution's goals may be accomplished reliably in most circumstances, and projects being completed on time, under budget, and under scope. According to Bucero and Englund (2015:54), the final function which has to be established is project portfolio management. This position offers information and suggestions to the leadership group, as well as monitors active initiatives and tracks strategic fit amongst projects. Likewise, this is the effective project manager's responsibility to alert long term planning and control when projects do not reach their objectives or have adequate resources.

In any event, the leader must have the ability to guide the activities of a project implementation process (Jawah and Laphi, 2015:15-39). To a considerable extent, a person must be inclined to perform, which ultimately is led or steered by the manager; which is why individuals go to work these days. As a result, project managers must utilise their authority positively (Jawah and Laphi, 2015:15-39). A project manager may wield personal authority. Personal authority is generated not from a person's status in such an organisation structure, but from the attributes, skills, or features that a person embodies (Jawah, 2014:10-17). According to Daft (2015:33), there are four types of personal authority: referent authority, traditional authority, information authority, and connection authority are examples of power. Giving direction and having a positive reputation so that colleagues reach out to them is how one gains referent authority. When a person possesses expert authority, the organisation is able to execute the work due to the person's applicable expertise (Daft, 2015:33).

A project manager with an international certification, the South African Council for Project and Construction Management Profession, or any similar respectable authority, are regarded to have professional competence within project management (Jawah, 2014:10-17). In information authority, one has authority built on the notion that they own or has accessibility to knowledge that is required to do a project efficiently. Connection authority is unrelated to a person's status in any organisation or team, but their connection towards management team (Archibald and Archibald, 2016).

According to Bucero and Englund (2015:54), it is critical for project managers to engage stakeholders. The advice that if no one participates, then today's answers may become tomorrow's issues. Project managers have the capacity to shape stakeholders through this interaction. Every project manager can use affection to secure cooperation from other organisational players even if the project manager does not have direct power above them. This is critical to differentiate among power and impact. Power is all-encompassing, whereas influence is situational. According to Archibald and Archibald (2016:120), leverage is what one possesses once they exert power.

Persuasion, assertiveness, and force could all be used by the project manager (Burger, 2013:44-60). Therefore, a project manager may use persuasion to try to sway other players by presenting the advantages of the project management's stance. Whenever the project manager believes that her/his reasons and accompanying evidence are powerful, she/he should use persuasion in working with open-minded stakeholders. With assertiveness, the project manager attempts to elicit collaboration from all other stakeholders by using charm/serves as a beginning (Burger, 2013:44-60). A project manager may also use pressure to compel stakeholders to comply. External attention is used to augment the information which is being given by applying pressure. For instance, a project manager may exert pressure by enforcing consequences outlined in a supplier's agreement to compel him to complete a task which is the key route as fast as possible. Exerting pressure correctly takes skills and expertise since putting pressure might fail (Harrison and Lock, 2017:15).

Another duty for project managers would be to aim for a reputation like an expert within particular projects that their organisations undertake. One strategy is to acquire qualification in project management and the sector in which the organisation serves. A project manager is commonly seen as having any kind of technical talent (Heravi, Coffey and Trigunaryah, 2015:985-997). A project manager must establish a portfolio of other professionals on whom she/he can rely on for support (Harrison and Lock, 2017:15). A method for establishing long-term impact is for the project manager to form tight links and contacts inside her organisation on the premise of achieving goals apart from social preference (Heravi et al., 2015:985-997). The above discussion demonstrates how project managers must possess leadership, interactions, and teamwork abilities to successfully oversee the transition necessary to enhance PPM. They must show proficiency of these talents, which can be attained via expertise growth.

### **1.8.2 The obstacles to the improvement of an organisational project**

According to Buys and Stander (2010:59-68) using portfolio management to manage projects has not always resulted in success, according to previous studies. The following are some of the most prevalent issues that project portfolios encounter. While project management becomes a key leadership area for organised and adaptive management in a cross scenario (Beringer, Jonas and Kock, 2013:215-226), there are obvious issues that organisations face when implementing PPM as a strategy to gain a competitive edge. Among some of the issues include a divergence from organisational strategy throughout the project review process, and an ineffective stage gate procedure that permits projects to be approved despite rigorous review based on stated selection process (Bathallath, Smedberg and Kjellin, 2016:67-82).

Another issue is that organisations exclude smaller projects from project portfolio eligibility criteria, despite the fact that they can be relevant within portfolio setting. According to Brady and Davies (2014:21-38), such smaller projects can be an origin of portfolio management malfunctions because they consume money and effort which must be contributing to the crucial range of projects, rather than the impact beneficial qualities which could be required for the progress of other projects (Killen and Hunt, 2013:131-151). Beringer et al. (2013:830-846) investigated the absence of effect of stakeholder approach on PPM. Beringer et al. (2013:830-846) described a project portfolio stakeholder as any group or individual connected to a project portfolio in a way that the group or individual may influence but that is influenced by the accomplishment of a portfolio's goal. Organisations that follow certain core concepts of stakeholder approach stand a better likelihood of portfolio achievement.

Another key difficulty involves the 'competition' amongst projects at various phases of their lifespans. While certain projects within portfolio remain at the conceptualisation or rationale phases, some remain within the implementation or even closure phases. It is difficult to create a framework which examines projects in various phases, bringing them into account in a uniform and fair way, once they have distinct value offerings and at phases which cannot truly be matched (Brook and Pagnanelli, 2014:46-62). The difficulty of PPM execution is demonstrated by its reliance on upcoming and unpredictable knowledge which must be modified as the scenario gets apparent (Killen, Jugdev, Drouin and Petit, (2012:131). While this is valid for regular projects in standalone, such uncertainty gets increased under this case owing to the interdependence of many pieces within the portfolio. This intricacy renders the oversimplified understanding of PPM like a decision-making/resource-allocation activity obsolete (Clegg, Killen, Biesenthal and Sankaran, 2018:762-772).

Killen, Jugdev, Drouin and Petit, (2012:131) also mentioned the difficulty for organisations with maintaining a compromise in handling the restricted resources available across all projects within portfolio. An efficient movement of resources between projects when priorities alter may

not often be as straightforward as anticipated, because there can be organisational difficulties outside the project portfolio manager's influence.

## 1.9 Definition of key concepts

**Project Manager:** The person responsible for the management of a project (PMI, 2017:5).

**Project Portfolio:** A grouping of components (i.e., projects, programmes, initiatives, and additional tasks, such as maintenance and connected continuous operations) that makes it easier to manage those components effectively to achieve strategic goals (Calciolari, González Ortiz, Goodwin and Stein, 2022:152-160).

**Programme:** A group of connected projects, sub-programmes, and programme activities that are managed in a coordinated manner to reap benefits that would not be available if they were managed individually (Silva, Pereira and Magano, 2021:1-25).

**Project:** A short-term endeavour done to create a one-of-a-kind product, service, or outcome. Projects have a distinct beginning and end (Shojaei and Haeri, 2019:837-850).

**Strategic objectives:** The organisation's ultimate goals and it outlines what the organisation will do to strive to realise its mission (Kaplan and Norton, 2000:167-176).

**Portfolio:** A collection of initiatives coordinated to further the goals of a business (Nordbäck and Espinosa, 2019:321-350).

**Capital Project:** A project which is funded by Capital Expenditure and which results in the creation or additional value creation to an asset (Ali and Anwar, 2021:31-43).

**Execution:** Implementation of the project according to the approved project plan (Wuni and Shen, 2020:763-784).

**Project Lifecycle:** Comprises the series of phases that a project passes through from its initiation to its closure. Based on project cost and complexity, the project lifecycle is applied based on a measure of the planning, control and accountability required for a project (Laurent and Ernest, 2021:10-26).

## 1.10 Research paradigm, approach, and methodologies



### 1.10.1 Research paradigm/philosophy

Creswell, (2013:5) states that scientific research philosophy is an approach to thinking developed by the researcher that results in innovative, verifiable knowledge about the study object. In other words, it is the foundation of the research, which includes the selection of a research strategy, problem formulation, data collecting, processing, and analysis. A philosophical approach to research requires a researcher to make basic assumptions about the characteristics of the population and the nature of the science under which the research falls, that is, subjective or objective, either way. The study has applied a pragmatic philosophy which is suitable for a mixed-methods methodology (qualitative and quantitative), as long as it provides a meaningful approach to a specific phenomenon under investigation. It allows a researcher to create a comprehensive analysis that fully incorporates a wide range of relevant aspects into the study (Creswell, 2013:5). Pragmatism was found to be the most appropriate paradigm for the research, which includes concentrating on a particular idea or phenomena, gathering data from participants and developing meaning, incorporating personal values into the study, and confirming the correctness of findings.

### 1.10.2 Research design

A research design is the road map to be followed or steps / activities to be followed during a research, primarily stating what is to be done. Once the problem statement has been formulated, it becomes important to state what is to be done and what steps are best to get the most from the research. According to Mouton (2008:55) there are a few questions that need to be asked to guide in the selection of an appropriate research design. These are, namely;

1. What kind of study are you going to conduct?
2. What or how does a research design look like?
3. What design will best suit my research study?

Jowah (2015:78) posits that the most relevant and effective research design must assist in putting together controls necessary to mitigate any errors in the processes. The research pre-determines the way the research will be carried out, including data collection planning and processes. The research proposes guiding questions in this regard as stated in table 9.4 below.

**Table 9.4 Questions to be answer in the creation of a research design**

What are we going to study about?	How will we measure these variables?
Who is our population to be studied?	How will the sample be selected?
What will be the most ideal sample size?	What will we use to collect the data?
What ethical issues are important?	How will we analyse the data?
Who will make use of the data?	How will the findings be reported?

**SOURCE: Jowah, 2015:78**

There are different types of reach designs that can be adopted for the study, but depending on the purpose and objectives for the study, there are research designs more appropriate than the others. The researcher considered the descriptive research design to be appropriate for the phenomenon under consideration after specific considerations. Descriptive Research Design is a form of data and information gathering / collecting process that assists in the description of the status quo (Doyle, McCabe, Keogh, Brady and McCann, 2020:443-455.). This design makes clearer and provides both depth and breadth in the understanding of a situation in a way that enables better understanding a drawing together of relationships of the variables under study. Cresswell, (2012: 645-653) opines that the descriptive research design allows for the simultaneous use of both qualitative and quantitative research designs, and some common applications of this design are, namely;

1. Describes events / situations and allows for inferences and a deeper understanding of causal relationships between the variables under study
2. Permits for the measurement of central tendency through the use of percentages, median, mode, mean, variation or deviation from the mean
3. Assists in answering research questions like what, when, who, where and how as it relates to the problem statement under investigation

**Disadvantages of the descriptive research design**

The researcher examined closely the disadvantages of the descriptive research design and identified the following as negatives for the use of this design; there research does not assist with, namely;

- The research design depends heavily on the use of techniques and tools for the effective measurement of the phenomenon.
- If observation is used for the collection / gathering of data which is qualitative, this cannot be repeated with the same results
- It is not always possible to use the results to prove or disapprove hypothesis nor can they help in explaining clearly “how.”

Research experience over the years has proved that there is no one-type-fits-all situations research design that can apply best in all situations. Each design has its own merits and demerits, and it is up to the research to choose the most appropriate research design as they see it fit (Dixit, 2021:3318-3324). Needless to state that different researchers will have different choices depending on how they perceive the problem at hand, though this design has the noted disadvantages, it has the following benefits, namely.

### **Advantages of the descriptive research design**

Though this research design has its own demerits, it cannot be ignored that it possesses some positives that are suitable for the research at hand. The design is ideal for adequately understanding the status quo of the phenomenon under study. This assists in understanding better what the situation is like, thus it is conducted under certain conditions, namely;

1. Can be used as a pre-cursor in preparation for more quantitative research on the problem
2. Assists in pointing out what variables should be, can be ideal or worth for testing quantitatively
3. Help in identifying limitations to researching on the subject and allow for the development of more focused study
4. Can collect data that might assist in the generalisation of the findings and helps in the development of theories
5. It is compatible with the simultaneous use of qualitative and quantitative (mixed research methodologies) methodologies.

In the researcher's mind considering what the objectives of the study were and the intended use of the information, the advantages outweighed the disadvantages. The mixed research methodologies were applied to enable a full understanding of the phenomenon by providing both breadth and depth on the situation. The mixed research methodology itself has its own merits and demerits which were considered by the researcher. Mixed research methodology, like any other research tool or technique in existence will have its own strengths and weaknesses.

### **Weaknesses of the mixed research methodology**

There are positives in using mixed research methodology, however it is important to state also some of the glaring weaknesses of the methodologies, briefly listed below, as, namely;

1. **It may be expensive:** more time and special human resources are required to put together a water tight mixed research methods design.
2. **Difficulty in interpreting findings:** too often the findings are confusing and may create problems in understanding how to interpret the findings. There is need to understand both quantitative and qualitative data analysis processes.
1. **Interrelationship:** there is a link between the approaches in that one does certain aspects of the phenomenon and may not be able to do the other, and vice versa.
2. **Extending the scope of the study:** the researcher may use qualitative research findings to augment the findings from a quantitative approach, and vice versa and may have to analyse for (Palinkas, et al., 2011:23).

## Advantages of Employing Mixed Methods Research

Mixed research methodology involves the use of qualitative and quantitative research in one study, sometimes one after another or simultaneously. Qualitative research depends on the views of the researcher about what the participants are saying and is generally subjected to analytic induction leading to establishing of common themes. This is characterised by open-ended questionnaires, focus groups discussions, interviews and observations among other things. Contrast this with quantitative research which focuses on collection of numerical data that can be statistically analysed. This is characterised by use of structured questionnaires with closed-ended questions, performance tests, and open-ended questions that can be structured to quantitative data (Likert scale).

Increasingly researchers opt to use both methodologies in the same study to create a better and bigger picture of the situation under study (Cresswell, 2012: 645-653). A research design that combines qualitative and quantitative approaches in the same study (at any stage) is considered to be mixed research methodology. Some of the aspects that may be used at the different stages may be, the development of the research questions, data collection approaches, and data analysis systems used to reach to a conclusion. Mason (2006: 103-124) asserts that the use of both quantitative and qualitative in the same research provides the potential for understanding the contexts of experience ability for social explanation and generalization.

### Advantages

The use of both methodologies (mixed research methodologies) has positives in most research where it is used, especially in social sciences, political science, health sciences and any studies that may involve a human being. Some of the advantages are, namely;

3. **Synergy:** integrating the two in one research permits or provides a more complete and synergistic use data that gives better understanding of complex phenomena than if each method was used without the other (Fetters & Freshwater, 2015:203-213).
4. **The two complement each other:** results coming from analysis using the two approaches can be compared after collecting data from quantitative and qualitative simultaneously. Side-by-side discussions can be conducted to compare the data and qualitative data may be converted to quantitative sets and then the data can be validated.
5. **Contextualised and detailed research:** enjoys the strengths of the two approaches in providing a holistic picture of the context under study. This provides a more contextualised view because of qualitative data and high validity because of the quantitative data.
6. **Offsets Weaknesses:** qualitative data is generally considered as subjective with low external validity because of biased interpretations. On the other hand quantitative data

instead has high external validity, thus both methods together can offset the weaknesses of both.

7. **Flexibility - elasticity:** mixed research approach is not tied to strict research paradigms thereby allowing the researcher put together the different aspects of the study and construct a research design relevant to the study context and more appropriate for effective information gathering.

The researcher applied a mixed method approach to the research, incorporating both qualitative and quantitative methodologies, and is commonly used when a researcher utilized a pragmatic paradigm (Jowah 2015:102). These two methods have strengths and limitations; however, the research used both methods (mixed method) to capitalise on the strengths of each. Due to nature of the research study, both approaches were utilised to allow for both data quantification and perception measurement using the Likert scale. The structured questionnaire was divided into three sections: Section A (biography), Section B (Likert scale perceptions), and Section C (closed and open ended questions). Participants were given a questionnaire comprising both closed and open-ended questions, with the purpose of ensuring that the data acquired was analysed in a way that produced valuable and reliable results (Cooper and Schindler, 2011:151). Qualitative research is often seen as subjective and influenced by personal bias, whereas quantitative research is regarded as empirical and objective (Creswell, 2013:5). To ensure the credibility of qualitative research, it is best to draw as broad a sample as possible otherwise the study would be skewed and non-objective. (Plano and Badiie, 2010:275-304).

### **1.11 Demarcation**

The research was carried within the Western Cape local government in South Africa, in the department in charge of implementing capital projects using the project portfolio management system. As a result, responders included senior management, middle management, project managers, portfolio managers, and project management office (PMO) practitioners from municipal.

### **1.12 Research methodology**

According to Mills and Birks (2014:3), study methodology describes the methodologies to be used to carry out the study and how such approaches would be employed to the best benefit. Sampling, data gathering, data processing, and reporting are all components of methodological framework (Botma et al., 2010:83-180).

### **1.13 Target population**

Individuals who fulfil a specific standard for participation in a given case and which the investigator is interested in is referred to as the study's population (Cooper & Schindler, 2011:147). In this research, the focus was on project practitioners involved in the management, administration or execution of projects within these portfolios. The research was carried within the Western Cape local government in South Africa, in the department in charge of implementing capital projects using the project portfolio management system.

### **1.14 Sampling and sample size**

According to Jowah (2015:99) sampling is the choosing of a group of individuals from a statistical population to estimate attributes of the entire population in statistics, quality assurance, and survey methods. Researchers make an effort to acquire samples that are typical of the population under consideration. Purposive sampling was used to choose individuals who matched the criteria for eligibility Cooper and Schindler (2011:151). The reason for the selection of a purposive sampling is that it will save the researcher time by directly obtaining rich information from the individuals that are aware of the study subject. Total population was 298 senior managers, middle managers, project managers, portfolio managers, and project management office (PMO) practitioners from municipal within capital projects environment. Given the size of the research population, the researcher should take a sample of the research population. In order to investigation this theory, the researcher used 151 employees from capital projects as a sample.

Furthermore, Arikunto (2010:183) states that if the whole population is much less than 100, it is best to take a sample of all of them; but, if the total population is greater than 100, the sample can be collected between 10-15% or 20-25% or more.; this number was considered large enough to allow for generalisation.

### **1.15 Data collection instrument**

The structured questionnaire was distributed via email, unless otherwise requested by the respondents, and all respondents were given three weeks to adequately answer questions. At the end of the three-week cycle, all respondents who had not responded were contacted to determine when they could respond, taking into account the length of the study. To collect data for this study, both qualitative and quantitative methodologies were applied. A structured questionnaire (series of questions) generated from the study questions and objectives was developed. The questionnaire was divided into three sections: Section A - Biography (eligibility of respondents), Section B - Likert Scale (respondents' experience with project portfolio management system), and Section C - Open ended questions (more of qualitative).

### **1.15.1 Data collection method**

To obtain factual data from respondents, a structured questionnaire was distributed via email and all respondents were given three weeks to adequately answer questions. At the end of the three-week cycle, all respondents who had not responded were contacted to determine when they could respond, taking into account the length of the study. To collect data for this study, both qualitative and quantitative methodologies were applied (Bryman, 2012:209). Structured questionnaire is more focused with obtaining rich, complete responses than responses that can be simply categorised, and they provided for a considerable measure of freedom (Bryman, 2012:209).

### **1.16 Data coding and analysis**

The most important aspect of any research is data analysis. Data analysis is the summarization of acquired data. It entails interpreting data acquired using analytical and logical reasoning in order to find patterns, connections, or trends (Drachler and Greller, 2016:89-98). The process of categorising verbal or behavioural data in order to classify, enumerate, and tabulate the data is known as thematic analysis (Botma et al., 2010:83-130). The questionnaires were assembled, cleaned, edited, and coded before being loaded into a Microsoft Excel software from which drawings were created. The graphics (graphs, charts, frequency polygons, and tables) assisted in the comparison and explanation of the variables. All of the data (questions) were coded and entered into the computer for analysis. The information gathered from the questionnaires was evaluated using the Microsoft Excel programme. After calculating the score, the researcher divided it into a scale for each factor and chose the factor with the highest percentage as the dominating factor.

### **1.17 Data validity and reliability**

Research quality was assessed using reliability and validity. They show the accuracy of a procedure, methodology, or test. The main goal of establishing reliability and validity in research is to make sure that the data are reliable and repeatable and that the conclusions are accurate (Bryman, 2012:209). The data collection instrument in this study assured the validity and reliability of the research since collecting data using structured questionnaire. To determine the reliability of the questionnaire, the researcher used the SPSS programme to determine whether or not the questionnaire is reliable.

### **1.18 Limitations of the study**

This study only focuses on a municipality in the Western Cape, and the findings do not provide context for other municipalities in South Africa. The scope of the study is restricted to the project portfolio management system and the department executing capital projects to improve service delivery. The participants may have forgotten about the questionnaire due to the hectic schedules of the individuals involved in capital projects, but the researcher provided reminders via email and phone calls prior to the meeting dates. The researcher used emails to get pertinent data from respondents who were unable to complete the face-to-face questionnaire.

### **1.19 Ethical consideration**

Research ethics is of utmost importance in studies and allows academics to protect the integrity of their subjects and reveal studied data (Akaranga and Makau, 2016:1-19). The researcher requested for permission to conduct the research at a Western Cape municipality. The participants were ensured of their privacy and confidentiality by not disclosing their participation to one another and used pseudonyms during the presentation of this research. A consent letter was given and signed for volunteering participation, and they were allowed to withdraw from the study should they feel uncomfortable. The participants were alerted not to answer questions they did not feel comfortable with. A formal communication from the Higher Degree Committee (HDC) at the Cape Peninsula University of Technology (CPUT) provided proof that the researcher had been permitted to conduct the study.

### **1.20 Chapter classification**

**Chapter One:** provides the introduction of the study with background information on literature reviewed as well as setting out the problem statement, research question and the research methodologies.

**Chapter Two:** Presents an overview from existing theoretical literature on strategic objectives, imperatives for strategic objectives, portfolio processes, and their impact on project execution success.

**Chapter Three:** Literature will be reviewed and discussed in detail under the following main headings: portfolio models, their applications, and their relationship to project maturity and execution success. The key factors of project portfolio management in capital projects; the challenges in effectively implementing project portfolio management method.

**Chapter Four:** discusses the research methodology; the research design and methodologies that were used to collect and analyse data.



**Chapter Five:** Data presentation and analysis of the empirical findings will be discussed in this chapter.

**Chapter Six:** This chapter will provide a conclusion to the study, summary and recommendations for future research.

## **1.21 Conclusion**

The investigation is on the significance of organisations implementing project portfolio management operating model in order to achieve strategic objectives and to identify the critical factors of a successful project portfolio management system. An overview of this study is based on the problem statement, methodology and importance of capital projects. Provisional literature review identified key drivers for capital projects to completion at budgeted cost, in time and greater quality. The study explores the relationship between project management and portfolio management concepts, processes, challenges and benefits. The research design highlights the mixed methods approach. In addition, the chapter mentioned the delineation, sample and the significance of the study.

This study's goal is to contribute to the existing body of knowledge on project portfolio management, particularly for local government. The researcher aims to gain a better understanding of effective PPM processes, best practice and the supporting factors needed for PPM activities.

## **CHAPTER TWO**

### **PORTFOLIO PROCESSES – DIFFERENT PROCESSES AND IMPACT ON PROJECT EXECUTION SUCCESS**

#### **2.1 Introduction**

In today's worldwide economy, the importance of project portfolio management (PPM) has grown significantly. Projects are not produced in a vacuum. Despite the fact that the project has a specified brief, budget, schedule, as well as scope of work, it is nevertheless subject to change. It is no longer a secret that resources are growing scarcer, internal and external settings are becoming significantly more volatile, and change is becoming more rapid. This chapter scrutinises and discusses in detail the current literature on portfolio management in order to even further argue with the goal of presenting the reader with a clear grasp of portfolio management success, portfolio strategic objectives, processes, key drivers in the implementation of portfolio management model, and importance of portfolio management and to uncover its failures.

Alexandrova (2018:96-105) asserts that project management has become more popular as a technique of delivering both goods and change inside organisations as a result of the changing environment. Organisations are confronted with an environment that is getting increasingly complicated yet being interconnected, necessitating a consolidated perspective of projects and investments due to the ever-increasing number of projects. As a result, businesses must 'do more with less', and have a better capacity to adapt to difficulties effectively and efficiently. The necessity for effective resource allocation and efficient business process execution has given rise to many PPM methods (PMI, 2017a:10).

The purpose of portfolio management, according to PMI (2017a:5), is to create value while minimising risk and optimising return on investment. Portfolio management is a concept that focuses on effectiveness by prioritising funds for the most relevant initiatives that are aligned with Corporate Strategy (risk reduction, increasing the reward). As a result, PPM is a critical discipline that may have a beneficial influence on an organisation. Oosthuizen (2018:89) is of the opinion that PPM as a critical discipline, may have a beneficial influence on an organisation. PPM delivers trustworthy information to top management to aid decision-making, permits centralised view or transparency of projects and programmes, and supports in the implementation of strategy and services through projects. PPM tries to group components (projects/programmes/operational activities - day-to-day operations) to achieve the strategy's goals. These elements may or may not be connected, but they are chosen to assure optimal risk versus reward and trade-off decisions to achieve balance.

## **2.2 Strategic objectives**

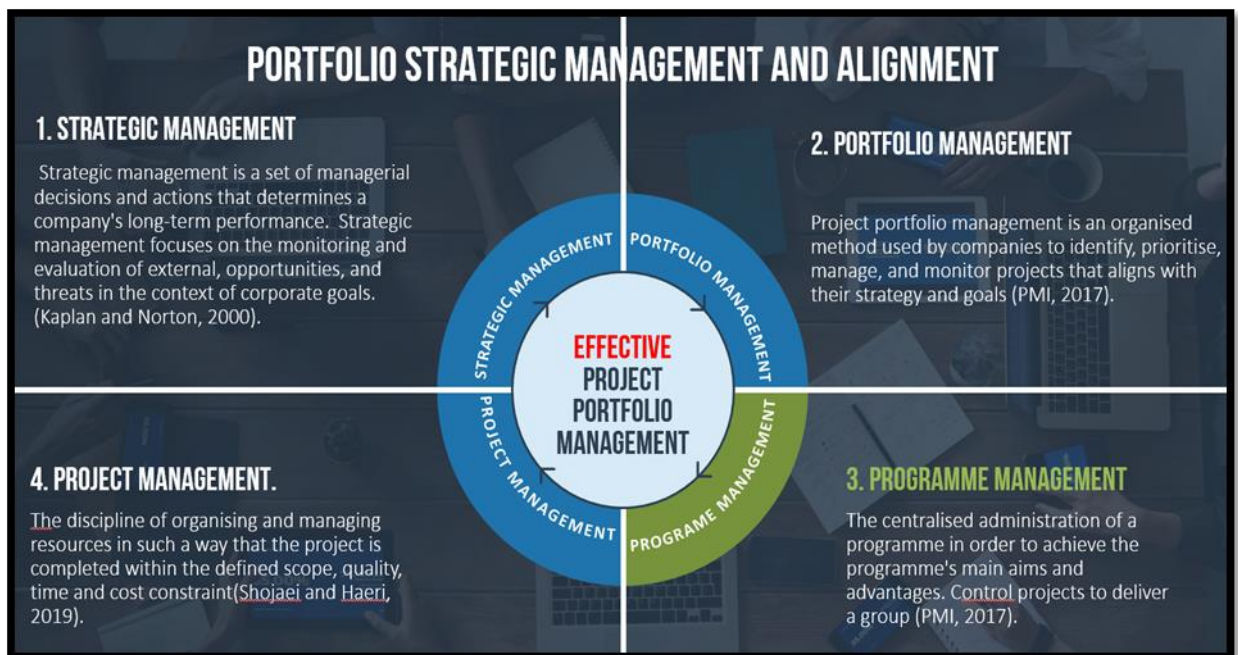
It must be stated clearly and without ambiguity from the start that strategic objectives are indeed a process of continuous progress. Meskendahl (2010:807-817) contends that a strategic objective is not a project or a programme, but rather a constant improvement activity that should be characterised as such. Improve, strengthen, diminish, reduce, and enhance are all synonyms for strategic goals. They are active verbs that represent ongoing activity. Rather than developing strategy, businesses have a lot of trouble putting them into implementation (Meskendahl, 2010:807-817).

Why is it critical to understand that a strategic goal is a process of continuous improvement? Boonlua, Gan, Palasak, & Chuwiruch (2022:4747-4761) answers this critical question by stating that strategic objectives are regarded as the Performance Measurement system's DNA. The effectiveness of the subsequent processes of strategy alignment, performance measurements, objectives, and strategic initiatives are largely dependent on the accuracy of the strategic objective. They further allude that doing it right from the outset will ensure that all of the parts necessary for a successful performance measurement system are in place; getting it wrong will result in a bad implementation and lots of rework. According to Asgarhalvaei (2021:45-69), the execution stage is frequently the graveyard of strategy, and it remains an understudied area of research. This assertion is supported by current research. As a possible solution, project portfolio management has been suggested (PMI, 2017a:2). In a comprehensive Portfolio Management process, many of the projects and programmes in the portfolio are evaluated in tandem with one another and in light of the organisation's strategy and objectives. Asgarhalvaei (2021:45-69).

## **2.3 Portfolio Strategic Management and Alignment**

Beese, Haki, Schilling, Kraus, Aier, and Winter (2022:1-14) indicates that portfolio's alignment with the organisation's strategy serves two functions. Most significantly, it adds discipline towards the process of selecting projects, favouring projects with the highest predicted results for fulfilling the goal at the lowest cost. It also enables ongoing initiatives to be evaluated on a regular basis to see how effectively they are meeting their goals. Underperformance, a shift in the organisation's direction, or both, might lead to a decrease in support for a certain project. Project Portfolio Management integrates projects and programmes with business strategy by ensuring optimal projects are selected for successful implementation. Projects deliver products, programmes link to business strategy and deliver value or outcomes throughout business areas, and Project Portfolio Management ensures the best projects are identified for

execution. As seen in Figure 2.1, Portfolio Management ensures that Programmes and Projects are aligned with strategy, while Programmes and Projects strive to deliver benefits and products that are aligned with strategy (Hyväri, 2014: 229-236).



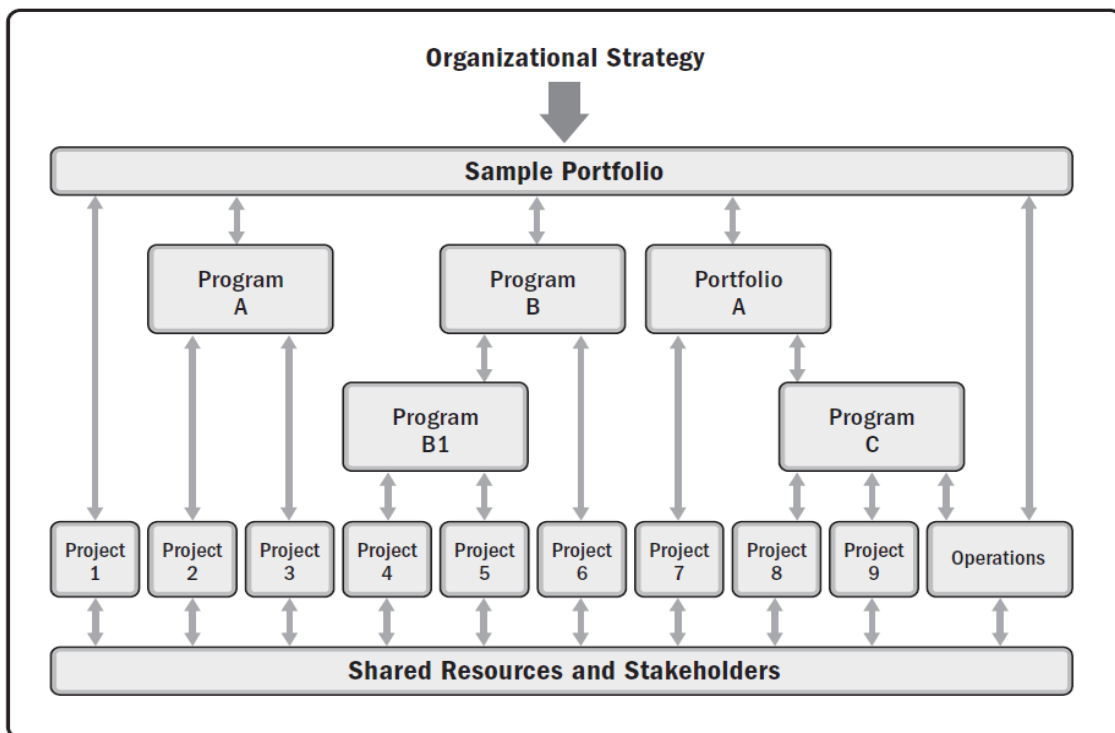
**Figure 2.1: Portfolio Strategic Management and Alignment**  
(PMI, 2017:15)

Portfolio management is still described as a group of projects, programmes, and other activities that are organised together to facilitate effective management of all those activities to meet strategic corporate objectives (PMI, 2017a:5). There are two key words that appear in all definitions of portfolio management: objectives and strategy. Hyväri (2014:229-23) further states that formulating a strategy is creating an empirical formula as to how a company will compete, what its aims (mission or goal) ought to be, and also what policies would be required to achieve these objectives. The balanced scorecard was developed by Meskendahl (2010: 807-817) includes four viewpoints for putting a strategy into practice. Portfolio management refers to the coordinated use of one or more portfolios to achieve organisational goals and objectives. Portfolio management is the coordinated management of one or more portfolios to achieve company objectives and strategies. The ultimate goal of integrating portfolio management with corporate strategy is the development of a well-balanced, workable plan to assist the organisation in meeting its objectives. Projects, relationships, and portfolio elements are all interconnected (PMI, 2013:10).

Senior management must actively participate in portfolio management to successfully implement a strategy change. However, majority of executive directors and strategic thinkers

have still to master project management terminology and mindset (Morgan et al., 2007). Hyväri (2014: 229-23) adds that the creation of a well-balanced, workable plan to help the organisation achieve its goals is the ultimate goal of connecting portfolio management to corporate strategy. Sustaining portfolio alignments to strategic goals, allocation of financial resources, assigning people resources, assigning materials or equipment resources, monitoring portfolio component performance, and managing risks are the six areas where the portfolio plan has an influence on strategy.

Projects are different and are often managed as stand-alone efforts or as part of either a portfolio or a programme of projects that are interconnected. Project/programme managers bear complete responsibility for project/programme execution, which is why it is considered a centralised function. However, in order to improve overall project management skill and better alignment between strategy and delivery, a link between projects is established (PMI, 2013:10), as shown in Figure 2.2.



**Figure 2.2: Strategic Relationship among Portfolios, Programmes, and Projects**

**(PMI, 2017:4-6)**

## **2.4 Factors that relate to the strategic management success of project portfolios**

PPM's aim includes supporting project performance and optimising the financial return inside the capital projects, along with tying the projects under the cash position towards the institution's vision and integrating initiatives across the institution's available resources and competence (Fraser, 2020:12-22). PPM performance is determined as the performance of initiatives in the repertoire and the delivery of the plan for future institutional success. The next discussion focuses on the factors that relate to the strategic management success of project portfolios:

### **2.4.1 Obtaining Strategic Alignment**

Setting strategy has grown significantly and is now conducted successfully in several institutions. However, aligning initiatives to a plan and successfully implementing various ventures remained a difficulty (Kissi, Dainty and Tuuli, 2013:485-497). Amongst challenges is the misconception that even a strategy is achieved through procedures rather than initiatives. One of the purposes of PPM would be to connect initiatives strategically with the strategy formulation, which allows for a higher degree of executive and stakeholders participation to promote project outcomes (Fraser, 2020:12-22).

According to Kissi et al. (2013: 485-497), the purpose of strategic alignment may be described by three facets of alignment: (1) strategic integration (projects' alignment with the stated plan); (2) strategic impact (the necessity to implement specific projects to attain excellence with a specific strategy); and (3) strategic goals (the allocation of resources based on strategic relevance). Strategic alignment may be described as the connecting of project portfolios to the institutional vision, and purpose which fits with the organisation's strategic planning criteria. Moreover, project portfolios must complement the institution's strategic plan and should try to increase the likelihood of attaining the institution's objectives, vision, and purpose (Kissi et al., 2013:485-497).

### **2.4.2 Balancing a Portfolio**

The second key goal of PPM is to choose short- and long-term initiatives using varying amounts of exposure inside a portfolio after it is integrated (Martinsuo, 2012:1-13). Balancing is a prevalent notion in institutions, since firms must combine a variety of financial and non-financial goals, along with functional and project tasks. Other factors to consider while balancing the portfolio comprise reconciling problems with decision choices. An emphasis on cost reductions vs strategic technological expenditures, for example, necessitates a

compromise that represents the trade-off among these two aims (Teller, Unger, Kock and Gemünden, 2012:596-607). A portfolio may include a diverse range of initiatives with varying risk levels, lifespans, and project lengths. This necessitates negotiation and coordination amongst project stakeholders who have competing criteria or want competing outputs (Martinsuo, 2012:1-13).

PMI (2013:5) gave an in-depth review of portfolio balance and suggested several balance aspects that indicate the link between volatility and reward as well as the usage of technology to develop strategic advantages. Benefit monitoring and management are essential components of project portfolio management (PPM). Benefits must be tracked and evaluated in the context of PPM for both specific projects and the portfolio as a whole. Institutions face a problem in measuring advantages and durations, which necessitates the use of systems, procedures, and technology (PMI, 2017:10). Likewise, within the scope of strategic planning, institutions must correlate strategy expenditure with predicted medium-term results, creating a further connection across PPM and strategy.

#### **2.4.3 Project efficacy**

Shenhar, Tishler, Dvir, Lipovetsk and Lechler (2002 cited in Castro, Bahli, Farias and Filho, 2019:66-77) discussed how project efficiency may be measured using the project timeline, budget, and areas based. Shenhar et al (2002:111-126) also state that efficiency plays an important part with project portfolio performance and having direct impact on consumers and their comfort. In contrast, Castro et al. (2019:66-77) assessed key stakeholders' confidence to assess project portfolio performance. The authors investigated the link across project efficiency and complete project portfolio success. Results demonstrated empirically that performance is vital to organisational project completion (Castro et al., 2019:66-77). Howsawi, Eager, Bagia and Niebecker (2014:533-556) conducted an analysis and interactions with Swedish engineering firm project managers about the ideas and impacts of efficacy in project-based teams. They demonstrated there was no obvious distinction between two concepts. However, the findings suggested that efficacy would improve project completion (Howsawi et al., 2014: 533-556).

#### **2.4.4 Strategic flexibility**

According to Patanakul's (2015:21-28) analysis, strategic management academics concur that alignment is constant and is likely insufficient to handle the institution's potentially unexpected, dynamic, and challenging market. The writer proposed strategic flexibility being an answer to these difficulties. However, Patanakul's (2015:21-28) analysis, on PPM maintains keeping staff

updated regarding risks in their work environment and guarantees that portfolio remains flexible to such problems. Hyväri (2014:229-236) encourages analysing, prioritising, and choosing projects based upon strategy.

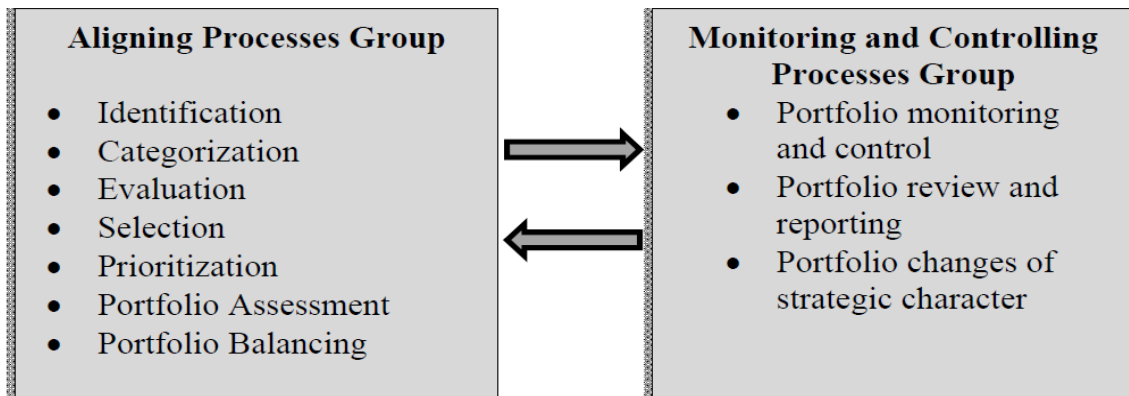
Turner and Zolin (2012:87-99) show that intentional portfolio choice can have a favourable impact on portfolio performance. The researchers also found that portfolio choice technique must be tailored to the features of the institution. According to Shenhar et al. (2002:111-126 quoted from Castro et al., 2019:66-77), project portfolio strategy should be an inherent aspect of an institution's mind-set and strategy implementation. Projects should be used as a powerful strategic tool for effective competition and financial value; projects may become factors that push strategy into attractive frontiers rather than operational tools.

The efficacy of handling the project portfolio is closely tied to the portfolio's conformity with the institution's strategic vision. Not only does the institution's strategy depend on PPM procedures, but the PPM processes also depend on the strategic plan. Obviously, PPM is intertwined with the institution's strategy. Implementation of PPM methods is a path to improve the efficacy of project portfolio management. According to Alexendrova (2016:83) the managerial system's critical role in reacting to strategic corporate objectives. All of this shows project portfolio managers that these techniques can be highly effective key factors in the success of PPM activities.

The Project Management Institute (2013:5) responsible for Standards of Portfolio Management developed a set of standardised aspects of portfolio management including strategic management, governance management, performance management, communication management, and risk management. These approaches are based on five areas of knowledge. The processes that are used are commonly grouped into two categories:

- The Alignment Process Group is responsible for developing, managing, as well as optimising the organisation's project portfolio.
- The controlling and reporting process group is responsible for the portfolio's continuing management, reporting of portfolio performance, and justification of strategic portfolio structure and composition changes. Figure 2.3 refers to Groups of PMI Standardised Processes.





**Figure 2.3: Groups of PMI Standardised Processes**

(Alexandrova, 2016:78)

Processes in each of the two groups are described in depth.

#### **2.4.4.1 Aligning Processes Group**

Alexandrova (2016:78) mentions that the collection of seven processes in the alignment process assists in formulating the portfolio by assisting in making crucial decisions.:

**2.4.4.1.1 Identification:** the vital aim of this process is to develop a complete list of projects and opportunities which should be evaluated for portfolio inclusion. This is not going to be a one-time thing. New projects and opportunities are added to the collection for review and portfolio assignment as they become available to improve performance.

**2.4.4.1.2 Categorisation:** Projects that are aligned with strategic goals make decision-making easier, particularly whenever the project inventory is too long to tackle. LaBrosse (2010:75-79) further demonstrates the relationship and purpose of the two groups "regulatory compliance" and another for "increasing operational efficiency." If the present priority is to promote regulatory compliance as soon as possible, all Group 1 projects could well be prioritised over Group 2 projects.

**2.4.4.1.3 Evaluation:** Data gathering is at the centre of assessment. Organisations may do extensive evaluations and prioritise projects by gathering and evaluating qualitative and as well quantitative project data (Alexandrova, 2016:78). According to Patanakul (2015) surprisingly, most businesses suffer from having much more data rather than just not having enough. It enhances data filtering by posing queries like as:

- Is the information you have on hand genuinely useful in deciding which projects to pursue? (relevance)
- Is the information accurate? If not, what steps may be made to increase the data's trustworthiness and credibility? (accuracy)
- Is there a set of criteria that can be used to compare one set of data to another? (standardisation)

Furthermore, displaying data in simply understandable styles such as charts, diagrams, and other graphic images enables communication with a broad audience and allows top executives to make timely choices.

#### **2.4.4.2 Selection**

The main list of projects is reduced to a smaller portion based on the following criteria:

- Added value to the company
- Resources are readily available (infrastructure, financial resource and human capital)

These two criteria might sometimes clash since a project's budget may be insufficient, even if it has the potential to provide value to the business (or vice versa). Organisations may design an ideal and attainable project plan and, if required, get more financing or resources by examining and balancing some of these elements.

#### **2.4.4.3 Prioritisation**

According to corporate priorities, this procedure entails rating and ranking projects in each area. It could be useful to rate projects according to their timeframe, short, or medium-term projects and their influence on available resources, for example. The priority order is determined using techniques such as the classification, scoring model, as well as risk versus return profiles. Organisations can employ the analytic hierarchy process strategy for a more mathematically rigorous approach.

**Portfolio balancing:** Projects in each category get ranked in terms of priority at this point. The final portfolio, however, is yet to be determined. Balancing connects all the preceding processes together and generates the proper balance of initiatives to optimise strategic results while taking risk and resource considerations into account. During the process, a whole category may be overlooked due to resource constraints, or a mix of projects from various categories may be picked.

**Authorisation:** Authorisation is the last stage in the alignment process group, and it entails conveying portfolio choices to all stakeholders. It also entails the proper distribution of resources to ensure that projects are completed successfully.

## **2.5 Monitoring and Controlling Process Group**

The two steps that follow ensure that portfolio managers keep their eyes and ears to the ground and can adapt their portfolios to a changing environment.

### **2.5.1 Portfolio periodic reporting and review**

Organisations should regularly analyse projects by obtaining critical performance metrics to assure the portfolio management lifecycle's success (Alexandrova, 2016:78). However, Young and Conboy (2013:1069-1188) mention that the use of Key Performance Indicators for cost, scheduling, resources, and communications allows for exception reporting and the identification and resolution of difficulties. PPM tools are an important aspect of this stage because they assist in maintaining quality standards and provide a quick way to collect data in real time.

### **2.5.2 Strategic change**

Project portfolios will never be successful if they are managed in a "decide and forget" manner. Rebalancing the portfolio is typically required when there is a substantial shift in strategy, performance, or macroeconomic developments. Constant monitoring and reporting can help achieve this.

Project portfolio managers ought to get new information and skills applicable to modern PPM methodology to increase their performance. In this regard, it will be especially beneficial for portfolio managers to focus more on: (1) aligning project portfolio operations with the organisation's strategic targets; (2) analysing the factors influencing the effectiveness of PPM; and (3) assessing the results not only at the project level, but especially at the portfolio level, taking strategic orientation into account. Killen, and Kjaer (2012: 554-566) expand on the interrelationships between the degree of implementation of PPM procedures and the success of the corporate project portfolio. The premise is that the greater the scope, the more the maturity of both the project driven organisation, and the greater the degree of portfolio operating efficacy.

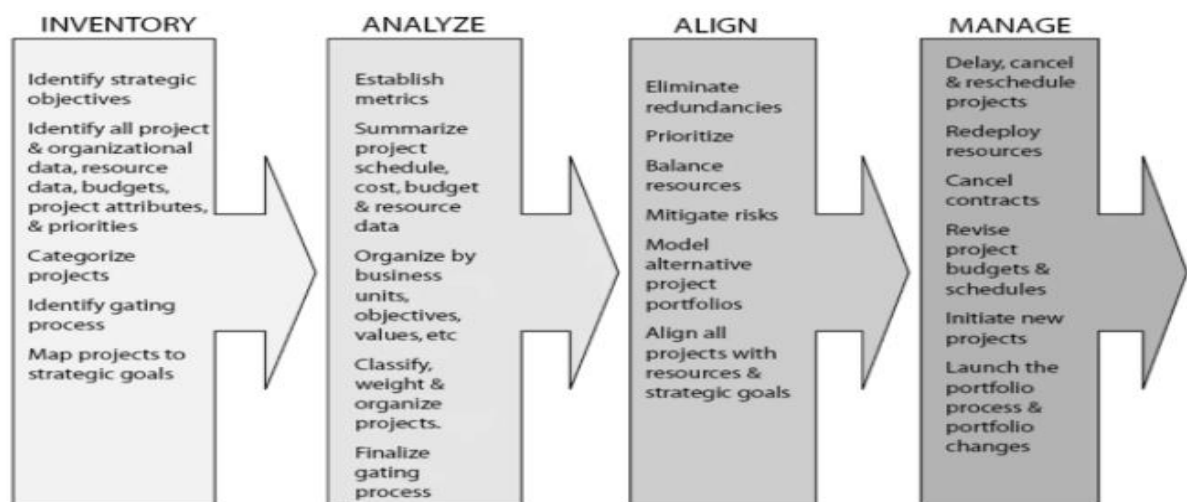
### 2.5.3 Portfolio processes and impact on project execution success

Portfolio processes are initiated at organisational operational level in projects facing challenges, disagreements, limited resources, and ambiguity, frequently on what function is being undertaken and must be undertaken. The methods increase the project's long-term viability (Enoch, 2010:19). Portfolio management entails 16 processes, 3 process groups, and 5 knowledge facets in totality (Project Management Institute, 2013:10). These are the processes:

### 2.6 Strategic Portfolio Management

This is the process through which an institution decides how to allocate its current resources inside a portfolio to fulfil its strategic goals. Strategic portfolio management involves taking tough choices over what operations or ventures must be undertaken, which is to reject, and when funds can be released or given over to spend upon activities or expenditures that closely correspond to institution's sustainable objectives (Levin and Wyzalek, 2014:15). It is critical for every project manager or portfolio manager since it establishes a strong connection among a team's vision and its actions, as illustrated in Figure 2.4.

**The process involves four core steps: inventory, analysis, alignment, and management.**



**Figure 2.4: Portfolio Process**

**(The Standard for Portfolio Management, 2017:10)**

### **2.6.1 Inventory**

Before deploying resources and cancelling projects, an organisation must first understand what it is attempting to accomplish. First, the strategic objectives of the organisation must be identified. Thereafter, it is important to examine all the projects and internal information, budgets, resources, records, and priority to obtain a full understanding of what is or must be functioning (Project Management Institute, 2017:35). Then, projects and a filtering process developed to divide them into manageable pieces. Finally, each activity should be examined, and it should be confirmed that they are relevant to the overarching strategic objectives (Levin and Wyzalek, 2014:15).

### **2.6.2 Analyse**

After actioning in a given scenario, it is crucial to form benchmarks for determining the progress of portfolio components. It is vital to examine the project timeline, budget, and capacity data (Project Management Institute, 2013:5). Thereafter, each section should be categorised to a functional area or aim before prioritising each portfolio component. The filtration process should be concluded to ensure that every step inside projects fits the larger strategic goals (Project Management Institute, 2013:5).

### **2.6.3 Align**

The goal of the alignment strategy is to ensure that the portfolio remains strategically integrated (Kiisel, 2010:10). It includes the institution examining how items are being utilised, emerging issues that may jeopardise the institution's path, and any cutbacks that may have arisen. The institution must take note that the ultimate objective is to establish that each portfolio item on line-up is collaborating with others to support the big picture (Kiisel, 2010:10).

### **2.6.4 Manage**

This is the last stage within the practice of strategic portfolio management. The final stage entails maintaining a careful check upon a portfolio and making modifications whenever they are needed. If the organisation deviates from its strategic goals, it might be forced to postpone or terminate projects, refocus resources, amend finances, or initiate strategic modifications as a portion of the managing stage (Enoch, 2010:15). Sadly, it constitutes a continuous task to portfolio managers in which a portfolio will be required to be handled as far as it continues, particularly if the organisation selects a strategic management approach (Levin and Wyzalek, 2014:15). Alexandrova (2017:73-85) states that this technique enables managers to focus on

their procedures, while continuously keeping the big picture in mind, due to everyone spending more time thinking about short-term objectives and emerging problems. However, it is difficult to keep track of the organisation's long-term plan. This procedure guarantees that every project the manager works on, is always aligned with strategic objectives. This entails doing regular evaluations and portfolio reviews to make sure that portfolio components are in order and that everyone stays on the same path.

## **2.7 Governance Management process**

Governance that delivers Project portfolio governance refers to the management of projects within a portfolio. It refers to having the right Projects should be used as a powerful strategic tool for effective competition and financial value; projects may become factors that push strategy into attractive frontiers rather than operational tools. People, with the correct expertise, making outstanding strategic decisions at the right moment. Solid portfolio governance is the foundation of project portfolio management since it is involved in all aspects of the portfolio management lifespan (Association for Project Management, 2011b:10). Strategic decision formation is required for project portfolio governance and a portfolio control without governance becomes a meaningless idea. This means that portfolio management needs to be well-defined and appropriately organised.

## **2.8 Creating a portfolio management strategy**

The creation of a control strategy for a specific portfolio includes an incremental process that comprises a sequence of designing and revising a portfolio management approach under portfolio governance management. This guarantees that the control plan's governance remains consistent with portfolio's mandate authorisation, strategic goals, and vision. Portfolio management plans include supplementary plans like communication, performance, including risk control (Bourne, 2014a:21-41). Starting a portfolio: Inside the realm of portfolio control, the method of developing the portfolio goes far beyond merely selecting qualifying portfolio items. It involves crucial operations including classifying portfolio items bound by a common range of decision rules and parameters and assessing those items using a rating and score system (Bourne, 2014a:21-41). A revised list of qualifying portfolio items will be established and is required to produce a structured portfolio for inclusion in the active process of review, selection, and prioritising. This step within portfolio governance control process ensures that resources get directed to sections that give the greatest value or financial return and are tightly linked with institutional strategic priorities (Association for Project Management, 2011:10).

Portfolio optimisation: Portfolio control is essential in portfolio governance since it guarantees that a portfolio gets managed and centred for shared value and improved performance. Optimising entails important operations carried out on portfolio elements (Beasley, 2013:20). This entails assessing portfolio items, conducting risk review, analysing, and establishing efficiency, analysing gains and estimated returns, establishing resource functionality, capacity, and restrictions, identifying the main priority portfolio aspect, and stabilising or realigning activities, relying on which aspects must be re-prioritised, stopped, or aborted (Beasley, 2013:20). This step entails weighing trade-offs for enabling portfolio success. This assists in achieving a sense of equilibrium, or across immediate and long objectives. When resources are scarce, action plans are balanced throughout the system (Bourne, 2014b:21-41). Other balancing actions include assessing or prioritising portfolio items that were chosen and prioritised. A portfolio gets maintained considering numerous aspects like intended risk profile, set portfolio control parameters, success factors, and operational restrictions to verify that it complies with corporate objectives and plans (Kempf, Olaf and Sven, 2015:467-490).

Approving a portfolio: The goal of approving a portfolio would be to engage or implement portfolio aspects by allocating resources. Following the authorisation of a particular portfolio aspect, activities are allocated (Bourne, 2014b:21-41). Financing and manpower for portfolios may originate from items that have been inactive or discontinued. Communicating portfolio adjustments and other associated choices to relevant parties, stakeholders, local authorities, and portfolio, programme, including project managers constitutes a component of portfolio authorisation process (Kempf et al., 2015:467-490).

Overseeing the portfolio: Portfolio supervision includes making governance choices in relation to portfolio effectiveness, suggestions and modifications to portfolio aspects, resource competences, prospective investment and financing allocation priorities, and potential challenges (Too and Weaver, 2014:1382-1394). This involves reviewing portfolio resources, efficiency, risks, and financial information; adhering to set standards; communicating governance choices; and reporting on portfolio developments, along with performance feedback, risks, assets, and monies (Too and Weaver, 2014:1382-1394).

This process has the influence of identifying, selecting, monitoring, and prioritising initiatives within an institution or an industry sector. It is frequently led by the basis of the preceding listed processes. Once the basis is solid, continued portfolio governance control and monitoring will lead to strategy goal nor assist project managers with navigating to the same goal. It provides a comprehensive framework for guiding enterprises through the project portfolio, from picking to implementation (Association for Project Management, 2011:10).

## **2.9 Performance management process**

Portfolio performance control is the rigorous planning, measurement, and monitoring of a portfolio's integral element based on attainment of strategic objectives. A portion of portfolio performance review is to control how essential resources, like people resources, funds, and assets, get obtained to get the best outcomes (Brzezczynski and McIntosh, 2011:22). Portfolio performance control must also be related to strategic plan, which is articulated into its shared vision, considering an institution's market stance, environmental conditions, and competitors. An institution will be capable to identify growth-oriented directions, as well as quality criteria to achievement, using a strong organisational plan (Brzezczynski and McIntosh, 2011:22). The process includes:

### **2.9.1 Creating a portfolio performance strategic plan**

This is possibly a part or a portion of portfolio management strategy that outlines how the merit of a portfolio is being determined. With portfolio performance evaluation, overall value of a portfolio is only realised when items are used among partners, consumers, portfolio recipients, the institution, and even the community (Jordan, 2015:15). As a result, a strategy is required to place everything into balance. Creating a portfolio performance action plan begins with an examination of the critical factors influencing project accomplishments: goals stipulated within portfolio strategy, as well as the aims required to achieve the goals (Jordan, 2015:15). Also, it specifies how portfolio items for human, budgetary, and materials or information resources are distributed. It is necessary to identify how resource capability can be maintained for optimal utilisation, as well as to react to changing needs to guarantee that a portfolio item blend generates the most value (Andreu, Sarto and Gimeno, 2009: 545-578).

Portfolio Value with Portfolio Reporting are two components of portfolio performance control plan. It involves an awareness of benefits related to optimal portfolio which has been monitored and improved to maximise added performance (Association for Project Management, 2013:10). The contrary, is how portfolio performance measures get developed and updated regularly within governing authority. Portfolio reporting allows sponsors to comprehend how predicted benefits might be delivered relying upon portfolio performance, that is critical in portfolio performance evaluation (Association for Project Management, 2013:10).



## **2.9.2 Supply and Demand Management**

The supply relates to the ability of materials and other factors shared by efficient portfolios. Demand relates to the material requirements of the portfolio's items. It is determined by the strategic planning/case analysis for every project (Andreu et al., 2009:545-578). Once the assessment of strategic resources has been compiled toward the appropriate degree of precision, it is linked to actual strategic practices or supplies, including finances, physical and intellectual items, and human capital (Brzezczynski and McIntosh, 2011:22). The comprehensive plan of material allocation would be required to guarantee uniform dispersion of portfolio materials. In this case, the purpose of delivery and demands strategy is to guarantee that resource ability is appropriately allocated given resource needs, while also taking strategic needs and future value into account (Jordan, 2015:15). This necessitates striking a stability across supply and demand.

## **2.9.3 Defined goals within portfolio management plans**

Portfolio value typically defined under portfolio performance measurement as the estimated worth arising from elements of a strategy, with the purpose of delivering the highest feasible performance which is consistent with objectives and mission and a tolerable degree of risk (Andreu et al., 2009:545-578). A portfolio's worth may be determined by its influence on profitability, operational efficiency, customer or employee happiness, marketing, community, and natural elements. This determines how effective portfolio performance evaluation is (Jordan, 2015:15).

The overall efficacy of this procedure is dependent on senior executives' absolute support and dedication, especially with decision-making style. Strategic objectives must be communicated effectively and clearly so that everybody in the institution is informed of decision-making systems, institutional goals and an institutional leadership method that allows continuous review. Risk and efficiency are measured on a regular and continual basis (Amanchukwu, Stanley, and Ololube, 2015:6-14).

## **2.9.4 Communication management process**

Portfolio Communication Management encompasses the processes involved in developing a portfolio communication strategy and managing portfolio data. The process is strongly related to the activities of strategy, governance, operational, and risk control. The selection of the communication plan is centred in meeting valuable data stakeholder expectations to make successful portfolio choices and meet institutional goals (Nieto-Rodriguez, 2015:30).

Transparency could be used as a communication approach to reduce the possibility of ineffective communication. Transparency about objectives and status can help the portfolio managers develop confidence and build strong connections. The process entails:

Full dedication and encouragement from senior executives, especially in decision-making style: This stage of the cycle seeks to define portfolio stakeholders as well as the communication options required. When it comes to who could handle communication, there are various parties engaged, including their distinct duties (Nieto-Rodriguez, 2015:30). They are split into diverse stakeholders. Relevant parties, programme managers, decision makers, change review boards, consumers, projects managers, working groups, steering committees, and expert leads represent a majority of those participating within portfolio clear communication strategy (Enoch, 2010:16). However, Kester et al. (2011:641-661) indicate that the portfolio that must be managed determines the number of teams or individuals participating to detect risks, information flows and feedback, and information sharing are used at this level of communication.

## **2.10 Portfolio information systems on portfolio interaction management**

This part of the process involves compiling, analysing, storing, and providing stakeholders with portfolio facts that are all in line with pertinent stakeholders and provided in a timely manner (Alatalo, 2012:25). The mode of interaction, including a launch session, project group meetings, expert design meetings, regular project reports, including project summary briefings, determines when or how communication is done. This information transmission is then followed by an interaction flow diagram, which provides a structure for project participants to manage. Alatalo (2012:25) argues that a web portal that monitors the process for communicating a project's progress or portfolio can be used to ensure that the portfolio interaction control strategy remains on track. Spreadsheets can be applied to confirm the correctness of an electronic application if portfolio control is enough (Nieto-Rodriguez, 2015:30).

This process impacts project execution and comprises a good communication platform that will keep misunderstanding and frustration from decelerating a project. This assists portfolio managers in keeping key participants focused on the project's objectives and what is anticipated of them. It is simple to maintain openness across all aspects of project governance when communicating effectively.

## 2.11 Risk management process

The conventional understanding of portfolio risk mitigation is that it entails processes for identifying, assessing, measuring, and managing risk inside the portfolio. The phases follow the same method as standard project/programme risk mitigation (Flint, 2019:29). However, , project risk control focuses on incidents that may have an influence on a system, and portfolio strategy that focuses on activities that may have an influence on the outcomes of strategic goals. Portfolio risk mitigation has a far greater reach than project/programme risk monitoring and therefore necessitates the engagement of top leadership (Flint and du Plooy, 2018:29). During project portfolio managing review, portfolio managers must ensure that the purpose of portfolio optimisation is to improve operational effectiveness. Portfolio risk control is a critical enabler of an institution's capacity to create more competitive advantages (Flint, 2019:29). Institutions that oversee portfolio risk smartly are better positioned to take risk, boost portfolio allocation, and get a greater amount of overall project excellence. Its process includes:

Recognise portfolio risks – Portfolio threats can arise from a variety of sources. Spectrum threats include major project concerns, which should be assessed on a routine basis within an array of feedback sessions. A portfolio governance group should identify further potential losses (Flint, 2019:29).

Examine portfolio risks – During portfolio governance sessions and portfolio performance reviews, the highest significant project concerns are addressed by the portfolio governance group. This group makes the decision on which concerns should be escalated toward the project level. The group will also evaluate the seriousness and likelihood of other important higher losses (Flint and du Plooy, 2018:41).

Create portfolio risk strategies – Portfolio governance approved risk holder(s) would be allocated to team members (or appoint) to create alternatives and measures to reduce risks to portfolio efficiency. Threats at the portfolio level must also be addressed (Romain, Martellini, and Meucci, 2013:60). Portfolio risks or even mitigation strategies should be monitored during Portfolio governance engagements (Petrinska, 2014:192-203).

The influence of portfolio risk strategy is to optimise the possibility of good occurrences while lowering the dangers of negative consequences on the capital projects. This component of portfolio risk control takes place during a “Protect Portfolio Value” process phase (Romain et al., 2013:60). Portfolio risk administration comprises methods for identifying, analysing, responding to, tracking, and controlling any risks which may prohibit the portfolio in

accomplishing its strategic goals. These activities are involved in evaluations of risks identified which have a detrimental impact upon this portfolio, along with assuring that project managers have a suitable risk mitigation strategy. Organisations that wish to increase the effectiveness on their project implementation must implement portfolio risk control practices.

### **2.12 Portfolio Strategic Alignment**

Strategic management becomes a critical activity in every institution. This is an ongoing process that is planned, executed, tested, and refined. Portfolio management is tied to strategy implementation, management, and coherence. The interdependence of many organisations is critical because “operational effectiveness cannot substitute strategy errors” (Costantino, Di Gravio, Nonino, 2015:1744-1754). Strategic planning, according to Kotler, Berger, and Bickhoff (2010:7), involves a practice that may be separated into four stages: general planning, tactical planning, operational management, and guiding and directing the planning activities.

### **2.13 Resource Management**

Meskendahl (2010: 807-817) mentioned that it is vital to assign and manage resources for each project or experimental project; failing to do so might result in a resource shortfall throughout the whole portfolio. Many experts consider resource allocation to be one of the most important aspects of portfolio management that should be in line with the company's strategy. According to PMI (2017:16), resource management at the portfolio level entails ensuring that capacity needs are in line with the portfolio's strategy and that the organisation's resource capacity can meet demand. This entails ensuring that adequate capacity exists to implement the intended portfolio, which represents a capacity demand, and prioritising the portfolio based on existing capacity in cases where capacity is insufficient, to construct the most feasible and useful portfolio.

### **2.14 Knowledge management and Communication management**

The goal in knowledge management would be to guarantee the optimal and continual use of acquired knowledge into decision-making processes. “Knowledge seems not significant in and of itself It has to be valuable” (Hyväri, 2014: 229-236). The source of data the institution needs must be determined. Organisational knowledge ought to be easily accessible. Inadequate knowledge or limitations of knowledge sharing are connected to an ineptness. Knowledge management becomes a method that allows strategic goals to be aligned with institution advantages. Knowledge management must be used in all aspects of organisation, including assessment, process management, organisational network, employees, mindset, and technology. Its application for knowledge management begins by an existing operational assessment wherein the organisation's objectives are stated (Gutiérrez and Magnusson, 2014:30-39).

Portfolio communication management involves the skill of handling portfolio data. The portfolio communication management strategy is a technique for stakeholder analysis. Such communication approach is required for recognising the most important information demands of stakeholders, that allows for decision making focused on institutional strategic priorities. Transparency through portfolio focus and prestige communication can help the institution within a variety of ways, including increased integrity for the portfolio supervisor, stakeholder relational management, and increased knowledge for assets to operate on attempts that are matched with strategy (PMI, 2013:12; Kaiser, Arbi and Ahlemann, 2015:126-139).

The objective of stakeholder communication is determined by practical and ethical conduct. The relationship among stakeholder engagement and organisational performance efficiency, include revenue accuracy and expenditure and risk savings, and is referred to as an operational justification. Managed communication enhances stakeholder interactions. Tashman and Raelin (2013:591-616) refers to individuals or groupings of stakeholders with legitimate interests and consequently economic worth to the institution as prescriptive justifications.

Other processes, like performance and competency management, are connected with knowledge management. The institution must consider whether knowledge management generates a sufficient depth of information and whether it gains sufficient knowledge beyond the institution, whether there is an effectual means of storing and sharing insights, how this is implemented, and whether it is reusable to construct knowledge. When an institution is dissatisfied with its status quo, it should constantly improve the system and check how the organisation structure endorses knowledge management, such as building teams both directly and virtually, defining the relevance of sharing information to staff, and researching how current system IT tools may be used better for information sharing (Kaiser et al., 2015:126-139).

## **2.15 Leadership**

The majority of guidelines give a realistic and straightforward method to portfolio management. A management strategy is aimed at executive management and strives to maximise the financial return by enhancing of operations. The notional standards and benchmarks need not consider organisational leadership and ethos and how these can impact strategic planning. Portfolio management performance may be assessed in figures and realised economic advantages, but it may also be essential to estimate how well the senior position is capable to guide the institution in the preferred manner (Gomes and Romão, 2016:489-497). According to Costantino, Di Gravio and Nonino (2015:1744-1754), good management necessitates

leadership and vice versa. To deal with intricacy and transition, organisations require managerial skills. Complications can be handled but change needs leadership. The distinction lies in the manner in which the task is carried out. Management focuses on formalising operational processes. Formal rules, and laws define a series of objectives and work instructions assist with managing an intricate institution that employs a variety of procedures and technology. Leadership focuses on coping with transition and developing new techniques for organisations to be capable of accomplishing the strategic goals. Leadership values open communication, openness, and the adaptability in job descriptions and duties (Rajegopal, 2013:14-18).

## **2.16 Portfolio, Programme and Project Lifecycles**

Proper planning is at the heart of project, programme and portfolio management and projects success fully depends how well one plans. Oosthuizen (2018:30) fully agrees with such a statement and further adds that programme and project managers in broad, programme and project-driven businesses can utilise PPM effectively towards managing project time, the resources, abilities, and budgets required to complete all associated activities. It provides a framework for problem solving and risk avoidance, as well as centralised visibility to assist in portfolio planning and project scheduling groups in determining the quickest, cheapest, or most appropriate method of delivering projects and programmes.

Salameh (2014:56) concurs that a project, programme, or portfolio lifecycle is the collection of usually and normally consecutive project, programme, or portfolio stages that have been planned to be completed during the length of the project, programme, or portfolio. Projects, programmes, and project portfolios are all part of a larger body of knowledge or knowledge domain. It is mostly known that project management concentrate on 'doing projects well,' whereas portfolio management focuses on 'performing the right projects,' according to a popular phrase. All three are attempting to provide value to the organisation, projects, and programmes by quickly providing goods and change to the organisation and portfolio by successfully picking the best initiatives to pursue. Martinsuo (2012:1-13) states that projects, programmes, and portfolios are all managed through a lifecycle in a project management operating model, and while each of these features has its own lifespan, they are not far off. Portfolio management lifecycle is indeed a sequence of activities that portfolio managers must complete in order for the PPM process to be effective. A portfolio management lifecycle consists of three stages, according to the Project Management Institute (2017:21):

- Planning
- Authorising
- Monitoring and control

While a Portfolio, Programme, and Project are all interconnected and belong to the same discipline, each has its own lifecycle: (Levine, 2005:70).

A **Portfolio Lifecycle** focuses on selecting the best programmes and projects that are aligned with the organisation's goals in order to generate value (Laurent and Ernest, 2021:10-26).

PMI (2017a:21) indicates that concentration of a **Programme's lifecycle** is on providing business advantages, or results to the organisation, hence change management is emphasised. Major business advantages are logically organised into 'chunks' in a programme, which frequently specify a collection of projects that supply the actual outputs or goods, allowing the firm to realise the desired benefit. By combining these projects into a programme, more synergy is produced for the delivery of business benefits by coordinating resource requirements, controlling interdependencies, integrating delivery, and managing risk in a consistent manner.

The **project lifecycle** is highly specified, with a clear start and end date, and it focuses on delivering the proper products within set scope, quality, time, and cost restrictions, as shown in Figure 2.5.

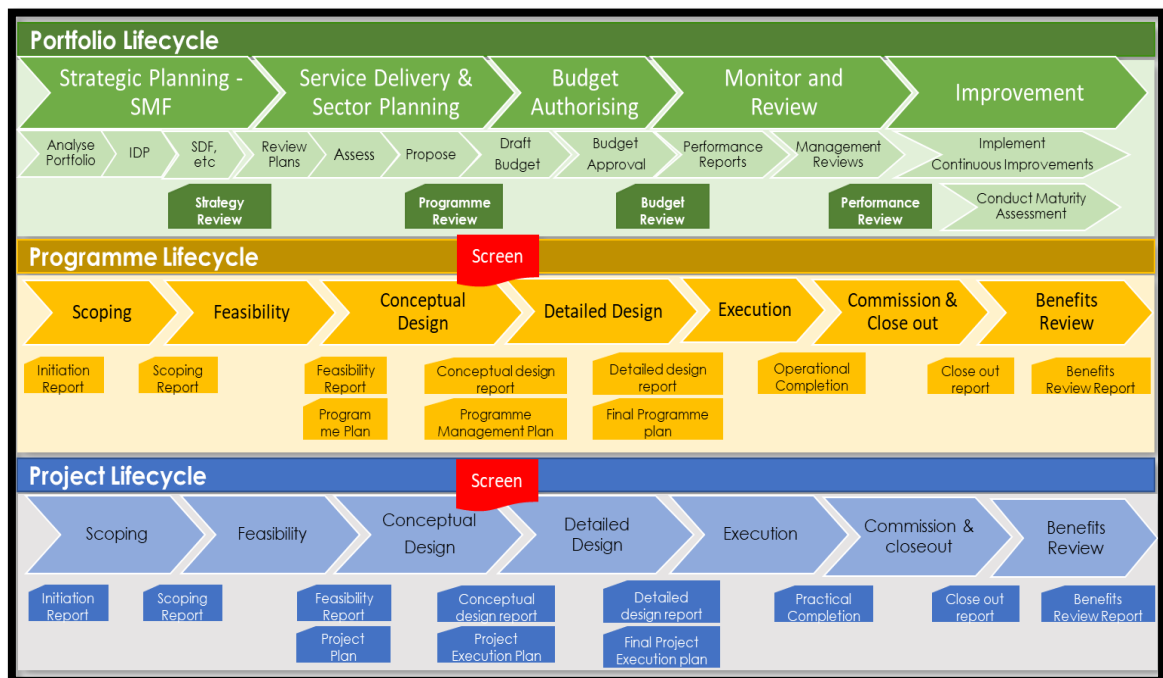


Figure 2.3: Portfolio, Programme and Project lifecycle

(City of Cape Town, 2017:66)

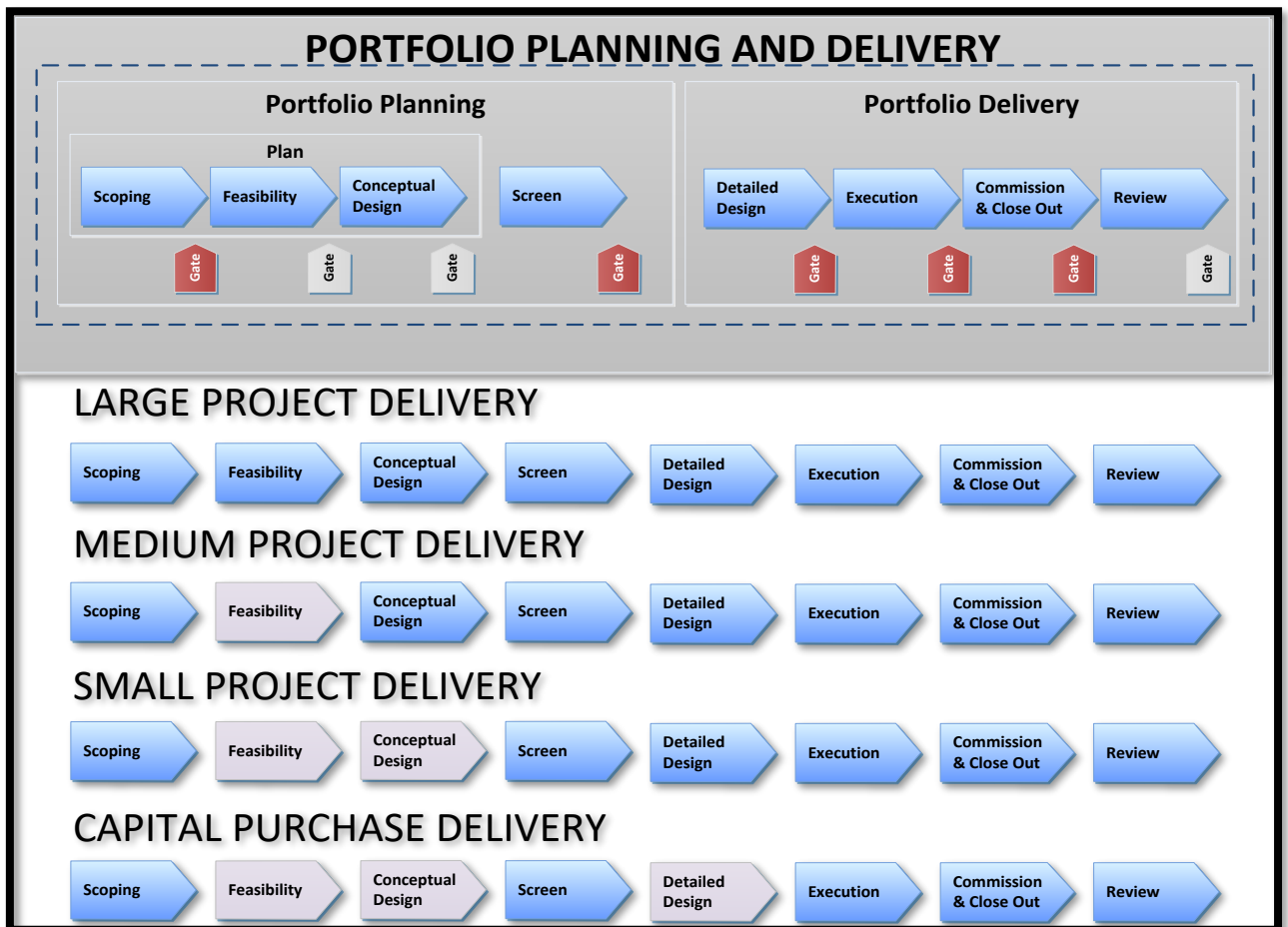
## 2.17 Portfolio Management Stage Gates Approach

A stage-gate process is a method for segmenting a lifecycle into distinct stages separated by decision points (also known as gates). A management, steering group, or governing board decides whether to proceed at each gate. The decision is based on current projections and facts, such as a business case, risk analysis, and the availability of necessary resources. The corporate strategy management framework implements the Portfolio lifecycle's key stages, which include the Strategy Review, Programme Review, Budget Review, and Performance Reviews (Cooper and Sommer, 2016b:513-526).

Sommer, Hedegaard, Dukovska-Popovska and Steger-Jensen (2015:34-45) further add on the literature that a generic front-end loaded Stage-Gate Lifecycle (FEL) can be implemented at the Programme and Project levels. The 'Stage Gates' are quality checkpoints that outline the activities that must be completed or evaluated, as well as crucial choices that must be taken before the implementation plan may progress to the next phase of project lifecycle. Eljayar and Busch (2021:40) concurs with other researchers' opinions that each stage-gate is meant to collect critical data – technical, financial, and operational – in order to control the risk of planning and execution.

According to Enoch (2010:15) the main aim of a stage-gate approach is to create improved planning, partnership, and communication in order to improve project decision-making and execution. A 'fit for purpose' approach has been taken to ensure that the front-end-loaded stage-gate process is adaptable and dynamic, allowing it to adjust to changing conditions and situations inside projects. This 'fit for purpose' approach to the stage-gate paradigm customises the needed portfolio, programme and project lifecycle based on the size, complexity, and value of the programmes and projects, as illustrated in Figure 2.6.





**Figure 2.4: Portfolio Programme and Project ‘fit for purpose’ lifecycle  
(City of Cape Town, 2017:66)**

The essential outputs are grouped in seven cases (focus areas) for each step of the programme, and or project lifecycle, to organise the information within packages relevant to particular key stakeholder groups within the Municipality. The following is a summary of the seven cases:

Research conducted by Killen, Jugdev, Drouin and Petit (2012:525-538) indicates that every Stage Gate model comprises the examination of data concerning the project's present condition in order to determine if the project should be continued, postponed, or abandoned. A formal gate assessment may well be required to support projects of a specific value and risk profile and Table 2.1 illustrates.

**Table 2.3: Stage Gate Focus Areas**

(City of Cape Town, 2017:90)

<b>Case/Focus area</b>	<b>Key considerations</b>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• Goals and Strategic Objectives alignment</li> <li>• Case for change</li> </ul>
<b>Social and economic impact</b>	<ul style="list-style-type: none"> <li>• Value to society</li> <li>• Options analysis</li> <li>• Risk vs cost vs benefits</li> </ul>
<b>Procurement</b>	<ul style="list-style-type: none"> <li>• Procurement options</li> <li>• Procurement risks</li> </ul>
<b>Commercial and regulatory</b>	<ul style="list-style-type: none"> <li>• Commercial viability</li> <li>• Contractual arrangements</li> <li>• Regulatory and statutory compliance</li> </ul>
<b>Financial</b>	<ul style="list-style-type: none"> <li>• Affordability</li> <li>• Funding requirements</li> <li>• Funding options</li> </ul>
<b>Project management</b>	<ul style="list-style-type: none"> <li>• Project portfolio management</li> <li>• Project management</li> <li>• Capacity to deliver</li> <li>• Governance framework and processes</li> <li>• Change management</li> <li>• Benefits realisation</li> </ul>
<b>Technical and engineering</b>	<ul style="list-style-type: none"> <li>• Technical due diligence</li> <li>• Technical optimisation</li> </ul>

The primary distinction between a project, programme, and portfolio lifecycle is the amount of value they manage. Projects have defined beginnings, generate value in the form of delivery of products, it has a specified scope, and employs specialised planning strategies for managing tasks at a precise degree of detail. Programmes take a more strategic approach to providing value throughout the organisation and bringing about more change in terms of expertise and service delivery. They are usually long-term and involve a great deal of risk (Ebrahim, Ahmed and Taha, 2009:211-2019).

## 2.18 Conclusion

The examined literature in this chapter suggests that the intensive execution of these processes might operate as a driver of the effectiveness of PPM operations, which is useful information for project portfolio managers. Even though there's no consensus on the processes, it is worth noting that implementing PPM techniques as a means of improving project portfolio management's efficacy, reveals the managerial system's critical role in meeting strategic business goals. The literature reviewed on the current study scrutinises portfolio management businesses' recent practices for using PMI standard processes within management of project portfolios (PMI, 2013:10).

In terms of identifying the processes of primary relevance for PPM in relation to the extent of its success, the literature proves useful to managers of project-oriented companies. Processes that have not yet been completely formed are considered as a significant source of future development and increased performance in public sector organisations. The purpose of this study is to close the gap between PPM specialised literature and PPM process practice in Cape Metropolis project environment enterprises. The findings of this study are intended to offer assistance to project portfolio managers in their job by getting the benefits of the PPM strategy. The research objective is to identify the primary procedures used in practice to ensure optimal resource allocation and effective business process execution. Its duties are exploratory and inventive in character, in the sense that they should give fresh and unique knowledge on a specific professional activity in project management in the local government sector of Cape Town

## **CHAPTER THREE**

### **PORTFOLIO MODELS, USE/APPLICATIONS, RELATIONSHIP OF PROJECT MATURITY AND EXECUTION SUCCESS**

#### **3.1 Introduction**

The literature on portfolio management will be reviewed and discussed in depth under the following main headings: project portfolio management theories, their applications, their relationship to project portfolio management maturity level models, and obstacles to organisational project improvement. An effective portfolio manager's leadership skill, role, challenges in successfully implementing project portfolio management, best practices, and benefits of effective PPM, defined project success, PPM success factor vs. success criteria will also be discussed.

#### **3.2 Project portfolio management (PFM) theories**

PFM is described by the Project Management Institute (2013:10) as the combined or aligned management of one or more portfolios, including the identification, evaluation, authorisation, management, and influence of projects, programmes, and other related strategies to attain specific strategic goals. The institute recognised that portfolio management generates useful information to endorse or amend strategic planning and financial decisions (Project Management Institute, 2013:10) and permitted decision-making which monitored the vision of portfolio elements as they obtained intended results. The following theories relate to the current study:

- **Modern Portfolio Theory (MPT)**

Harry Markowitz in 1952 started formulating his portfolio theory ideas in the latter 1950s (MPT). Markowitz demonstrated that a mixed portfolio of financial assets can be optimised using the concepts of difference and correlation to produce the optimum return given a specific riskiness (Schulmerich, 2013:27). In short, he summarised his effort as an inability to evaluate single uncertainty and an inability to address the collective danger of project portfolio (Schulmerich, 2013:27). Kendrick (2015:10-14) emphasised in his book that comprehensive risk assessment at the portfolio level minimises the frequency of mistakes and aids interaction between project leaders and top management leaders in obtaining agreement on the overall portfolio identified risks might lower the organisation's overall risk (Kendrick, 2015:10-14). Gomber, Kauffman, Parker, and Weber, (2018:220-265) are of the opinion that MPT is significant in this study as it offers a monetary venture concept that may be used to project portfolio control. Projects,

programmes, and operational efforts may all be considered as resources which must be linked with the goals of the business. With concept of risk sensitivity and capital growth, project portfolio management must be balanced.

- **Multi Criteria Utility Theory (MCUT)**

MCUT takes into account the decision-preferences makers within nature of a utilitarian feature specified across a range of metrics (Alac and Culik, 2017:502). Utility being a metric of desire or pleasure that gives a standardised scale for comparing actual and potential variables (Ang and Tang, 1984, as referenced by Stewart and Durbach, 2016). This utility function measures a decision maker's desires by providing an integer index to varied satisfactions with a standard (Stewart and Durbach, 2016:467-496). According to Alac and Culik, (2017:502), choices often include selecting either one or some of options from one range of many, with every option rated for attractiveness based on a set of scoring factors. The utility function links criterion scores to appeal. A decision-maker must first identify the total set of criterion one-dimensional objective functions for every option in order to ensure optimum expected utility for said alternative. In particular, MCUT incorporates the key benefits of basic scoring approaches with optimisation (Stewart and Durbach, 2016:467-496; Alac and Culik, 2017:502). Because the main aspect of project portfolio management would be the oversight of many projects, MCUT becomes significant in this research. As a result, MCUT helps in the knowledge of assessing various criteria when establishing the value of optimal portfolio to strategic goal.

- **Organisation Theory**

The analysis of organisational systems and organisational arrangements, and link of organisations with its outer world, and the conduct of leaders and functionaries inside organisations was already classified as organisational theory. It proposes methods for an organisation to deal with fast transition (Daft, Murphy, and Willmott, 2010:26). Organisation theory is primarily concerned with organisational difficulties including a competitive marketplace/development, social trends, collective equity, diversity, and technology advancements. Organisations are complicated and diverse, and they use procedures, structure, including decision-making in distinct manners (Petrinska-Labudovikj, 2014:192-203). From this explanation, it becomes clear that organisation theory (understanding organisational design, structures, connections, and the behaviour of leaders and functionaries inside an organisation) is required in developing solutions to issues which impact the organisation. Schellenberg et al. (2013:820-832) argues that it is crucial to PFM because PFM supports organisations in carrying out organisational strategies and achieving strategic goals. PFM integrates people, procedures, knowledge, and technology to adapt to organisational

change and maximise portfolio elements' integral to welfare and performance of the organisation

- **Systems Theory**

Skyttner cited in APM Systems SIG (2018:1-11) presented the system as any collection of interconnected units or pieces that constitute a unified whole meant to execute some task, shows order, symmetry, and goal. He went on to say that the organisation of a system distinguishes it of its elements. As per Vidal and Marle (cited by Kerzner and Kerzner, 2017:194-206), a system comprises an object that, in a particular context, attempts to achieve specific objectives by performing the work whilst the internal structure grows over time to maintain its unique identity. They drew the conclusion that projects must be seen as systems since they operate within a certain context and seek to achieve goals. Ludwig von Bertalanffy used an anatomical analogy to characterise flexible systems early 1951 (Enoch and Labuschagne, 2014:20). This created the groundwork for systems theory across project/portfolio management (Kerzner and Kerzner, 2017:194-206).

Systems theory supports with comprehension of complicated matters and promotes good governance and decision-making, leading to more efficient organisations (Lockwood, 2010:754-766). Systems theory, according to Lychkina (2022:191-204) is a managerial system which seeks to incorporate and unify systematic data in several fields of study. Kerzner (2019:1-6) further expressed how systems theory considers the big picture in tackling issues and mentioned that it entails the development of a managerial method capable of cutting across several organisational specialties. Kerzner (2019:1-6) argued that systems thinking is crucial to the performance of a project or, by inference, the performance of a plan and portfolio. According to Enoch and Labuschagne (2014:20), PFM has based in systems theory since it is a continuous management approach which examines the entire institution and spans numerous organisational areas. The PFM practice itself adheres to a systems perspective since it a) deems inputs (that is, strategic planning definition), b) converts these inputs into deliverables (e.g., products imbibed by the organisation or its consumers) utilising various methods or processes (namely, projects and programmes), and c) offers response in the version of strategy success through performance management (reward tracking) (Franco, Hiram, and Carvalho, 2018:58-73).

### **The models of maturity level of the project portfolio management**

From a strategic standpoint, this research asserts that an organisation's capacity to execute the intended process or activity determines its success. Therefore, it is critical to recognise that every organisation's complexity as well as maturity levels vary, and that the manner decisions

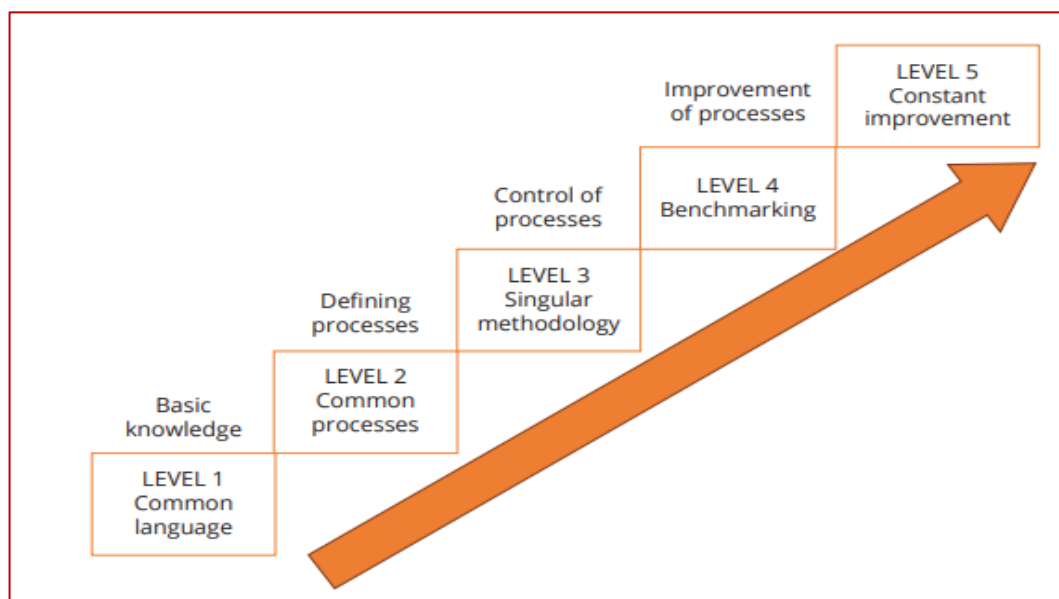
have to be made must be altered appropriately. Each company must also create a portfolio planning strategy that fits the structure of its organisation and complements the connections it generally has with its consumers, important providers, and key stakeholders (Patterson, 2005:46-58).

### **The proposed framework identifies the extent of project management maturity: a case study of project maturity**

- The Kerzner Project Management Maturity Model (PMMM)

The model designed by Harold Kerzner, a project management expert, is said to be adaptable and applicable to any institution, irrespective of size (Kerzner 2019:1-6).

### **The model specifies five stages in portfolio maturity.**



**Figure 3.1: Five Stages of Portfolio Maturity, adapted from (Kerzner, 2019:5)**

The model specifies five stages in portfolio maturity:

- Level 1 (Common language): Organisational participants recognise the relevance of projects in public service, get a basic understanding of project management, also utilise standardised approach in project execution (Kerzner, 2019:1-6).
- Level 2 (Common processes): The institution acknowledges that common procedures must be created and enhanced so the effectiveness with one project may be replicated in another.
- Level 3 (Singular methodology): The institution realises the synergies that arise from combining all techniques in the institution into a unified framework, the core of that is project control (Kerzner, 2019:1-6).

- Level 4 (Benchmarking): The institution acknowledges the need of upgrading processes in order to preserve a competitive edge. Benchmarking should be an ongoing effort. The institution has the choice on who to train.
  - Level 5 (Continuous improvement): Here, the institution is constantly assessing the knowledge gained via benchmarking and determining the applicability of the knowledge in developing their particular project management processes. The institution is always monitoring technological advancements, upgrades, scientific papers, and so on (Kerzner, 2019:1-6).
- **Organisational Project Management Maturity Model (OPM3)**

PMI created the Organisational Project Management Maturity Model (OPM3) around 2003 (Murray and Sowden, 2015:21). Grasping the OPM3 concept necessitates an understanding of what OPM stands for, that is Organisational Project Management. As per PMI (2013:32), OPM is “a cohesive, logical integration of expertise, abilities, resources, and procedures to institutional and project operations through accomplishing organisational goals using projects.” As a result, OPM3 looks at more than just project management maturity. This is the link among a project’s vision, organisation, and managerial skill. OPM3 is made up of four major components (APM, 2012:1-11) best practices, capabilities, key performance indicators, as well as outcomes as mentioned below:

Best practices were defined as the best approach, acknowledged and widely used in the market, of attaining the goal. Its utilisation ensures that the institution’s performance improves. However, in order for the institution to determine that it employs best practices, it must possess extremely specialised talents. Capability comprises a component for best practices, a unique skill that an institution should have in adopting best practices (Portman, 2022:8), as shown Figure 3.8.

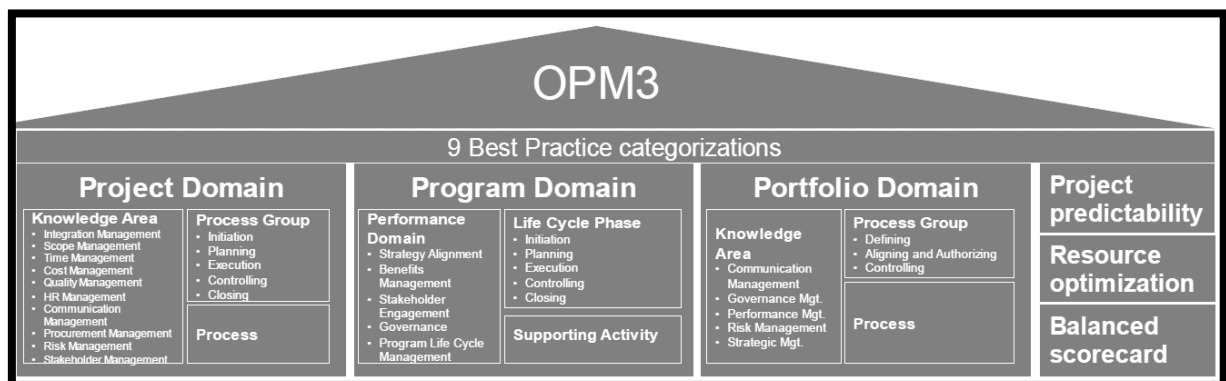


Figure 3.2: Organisational Project Management Maturity Model Overview

Adapted from Portman (2022:8)

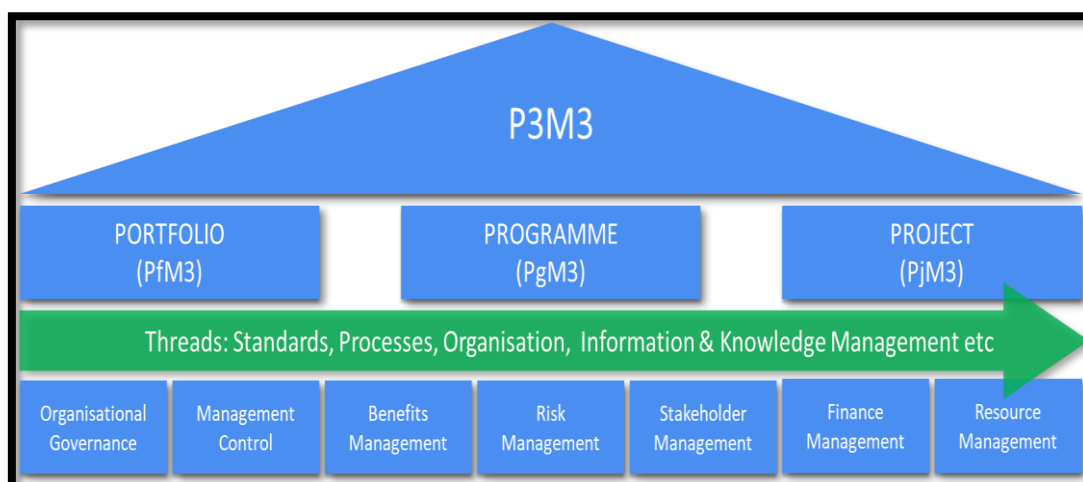


Each capacity provides a list of outcomes (at most one) which enable one to decide if the institution possesses a certain talent. Capabilities generate outcomes; meaning, having presence or application of skills from an institution produces particular consequences and outcomes. Indicators clearly validate them. These are numerical or intuitive basis for determining if the institution delivers the desired result, permitting the institution's own skills to be assessed. Indicators might be conveyed quantitatively as scores and qualitatively as content validity (APM, 2012:1-11; Murray and Sowden, 2015:21).

Mustafa (2015:30) argues that it is critical to handle prospective changes inside the organisational structure (internal shifts) as well as the industrial environment for any firm to thrive, maintain, and stay on course (external changes). The researcher goes further to state that internal transformation has become critical to achieving the organisation's strategic goals, while also balancing the value interests of many disciplines and stakeholders. Mustafa emphasizes that external changes, on the other hand, are unavoidable owing to the industries' dynamic competitive environment, in which rivals are always attempting to obtain a competitive edge in order to meet prospective difficulties that may raise the organisation's potential dangers (Mustafa, 2015:30). Organisations should apply their strategy effectively, consistently, and predictably for successful results from change management processes, and one of the best methods to do so is to use a standard/model like the Organisational Project Management Maturity Model (APM, 2012:1-11).

- Portfolio, Programme and Project Management Maturity Model (P3M3)

P3M3 is a maturity model for Portfolio, Programme, and Project Management that is used to measure organisational competence and identify improvement possibilities. Within the context of the organisation, the model evaluates the overall maturity of Portfolio, Programme, and Project Management. It examines the balance of procedures, people's skills, delivery tools, and management information (Bushuyev and Verenych, 2018:104-127). Hopkinson (2017:2) claims that the Capability Maturity Model (CMM), developed by the Software Engineering Institute (SEI) in the United States, evolved from the Britain Government Project Management Maturity Model, which has been based on the framework for measuring process maturity. This descriptive reference model was created to assist businesses in creating process improvement initiatives that are more effective.



**Figure 3.3: Portfolio, Programme and Project Management maturity Model**  
**(Bushuyev and Verenysh, 2018:104-127)**

Entrenched within the above process perspectives are a number of threads. These threads had previously been represented by attributes within the different stages of assessments.

**Table 3.1: The P3M3 threads**  
**(IGI Global - Bushuyev and Verenysh, 2018:104-127)**

Maturity Level	Project	Programme	Portfolio
1 – Initial	The institution identifies projects and manages them apart from its regular operations.	Programmes are recognised by the institution and are managed differently than projects.	The Executive Board of the institution acknowledges initiatives that retains the approximate record of its expenditures.
2 – Repeatable	The institution guarantees that every project follows its own set of policies and procedures through conformance with a minimal standard.	The institution guarantees that every programme is operated to a minimal stated level to use its policies and procedures.	The institution guarantees that every programme and/or project inside its portfolio gets done properly with its policies and procedures toward a minimum quality.
3 – Defined	An institution has its tightly regulated project processes that are capable of accommodating the specific project.	The institution has its tightly regulated programme operations that are capable of accommodating the specific programme.	The institution has its tightly regulated project level procedures that are capable of accommodating specific programmes and/or activities. The institution has its unique portfolio management procedure.
4 – Managed	In accurately forecast efficiency, the institution acquires and preserves particular metrics of its project delivery and operates a quality system.	In accurately forecast efficiency, the institution acquires and keeps particular metrics on its systems integration achievement and operates a quality system.	In a way for forecast efficiency, the institution gathers and preserves certain measures across its entire portfolio of programmes and initiatives. These methods

			are used by institution to evaluate programmes and projects across the portfolio.
5 – Optimised	In terms of increasing project performance across term and simplify procedures, the institution implements ongoing improvements with pre-emptive issue and systems engineering for projects.	In effort to expand project outcomes across time and maximise procedures, the institution implements ongoing improvements with proactively risk and strategic planning for programmes.	In addition to increasing portfolios efficiency and optimise operations, the institution implements ongoing improvements and adaptive issue and technologies control for said portfolio.

P3M3 focuses on the seven process perspectives listed below (Table 2: P3M3 Process Aspects), which are included in all three models and may be evaluated at all five Levels of maturity.

**Table 3.2: The P3M3 Process Perspectives**

(Portman, 2022:6)

Perspective	Definition
Management Control	Internal controls and direction throughout life cycle, with key decision points.
Benefits Management	Desired business change outcomes clearly defined, are measurable and are ultimately realised through a structured approach and with full organisational ownership.
Financial Management	Costs of initiatives are captured and evaluated within a formal business case and costs are categorised and managed over the investment life cycle.
Stakeholder Management	Covers stakeholder engagement at different levels, both within and outside the organisation in order to achieve objectives in terms of support and engagement.
Risk Management	The way in which the organisation manages threats to, and opportunities presented by the initiative.
Organisational Governance	Alignment of initiatives with strategy including how start-up and closure controls are applied and how alignment is maintained during an initiative's life cycle.
Resource Management	Management of all types of resources required for delivery including human resources, buildings, equipment, supplies, information, tools and support teams.

Entrenched within the above process perspectives are a number of threads. These threads had previously been represented by attributes within the different stages of assessments. Portman (2022:6) states that there are various threads that go across each of the views in the P3M3 Framework. These threads are related to important aspects of project management and contribute to the identification of opportunities for improvement. The general qualities that made up P3M3 are reflected in these threads.

**Table 3.3: Portfolio, Programme and Project Management Maturity Model Threads**

(IGI Global - Bushuyev and Verenyich, 2018:104-127)

Thread	Description
<b>Asset management</b>	The set of practices that are applied to assets in order to provide the required level of service in the most cost-effective manner. It includes the management of design, construction, commissioning, operating, maintaining, repairing, modifying, replacing and decommissioning/disposal of assets. (Note that project management assets, such as a project plan, are not considered assets in P3M3. These are instead covered as part of configuration management in management control).
<b>Assurance</b>	All the systematic actions necessary to provide confidence that the target (system, process, organisation, programme, project, outcome, benefit, capability, product output, deliverable) is appropriate. Assurance will have a level of independence from that which is being assured.
<b>Behaviours</b>	Covers the focus, motivation and prioritisation of work and the team's/individual's commitment to achieving success within the perspective.
<b>Commercial – buy</b>	The commercial management activities (for example procurement) of a client who specifies work and commissions others to deliver it.
<b>Commercial – sell</b>	The commercial management activities (for example bidding) of a supplier who delivers work for clients.
<b>Information and knowledge management</b>	How the organisation captures, stores, organises and references information of any sort (this includes lessons, reports, document management and guidance). In this way, the organisation builds capability through the sharing of knowledge and experience.
<b>Infrastructure and tools</b>	The tools and systems used to manage and support a perspective. It could be as simple as a template or as complex as an enterprise portfolio, programme and project management system. This thread often underpins the information and knowledge management thread and is an early indicator of maturity based on intent and the need for better management information.
<b>Model integration</b> (for programme and portfolio models only)	How the model integrates with other models (for example how programmes integrate with projects). Working from the top down, this thread focuses on the triggers and activities that enable integration at the different levels. For example, a programme needs to have decent project controls that span the seven perspectives if it is to achieve integration with its projects.
<b>Organisation</b>	The structure, hierarchy and competencies of people in relation to that perspective. This is a key part of P3M3 because it focuses on the people aspects. For example, the organisation thread includes having clear roles

Thread	Description
	and responsibilities, competency frameworks, and competency development through training and coaching.
<b>Planning</b>	Planning determines what is to be delivered, how much it will cost, when it will be delivered, how it will be delivered, and who will carry it out in the context of the perspective. For example, in benefits management, it relates to the planning of benefits management activities.
<b>Process</b>	A sequence of tasks that are used to achieve an output. In the context of the perspective, it will be the common management approach. For example, from the risk management perspective, the risk process will be the four steps: identify, analyse, manage and review.
<b>Standards</b>	Standards (e.g., policies, rules and categorisation/classification) require conformance and are a key part of P3M3. Increasing maturity is about setting standards that consistent processes are able to follow. The use of this thread shows that the organisation is defining its expectations.
<b>Techniques</b>	The techniques used to perform a process can vary considerably. Techniques also underpin the information and knowledge management thread; as the organisation becomes more sophisticated, it specifies the techniques that will improve performance (for example techniques for evaluating risk).

Buglione (2009:35-47) indicates that application of these threads are done in light of the organisational context to determine which of the optional threads will be applicable. Schlösser, Dunning, Johnson, and Kruger (2013:85-100) are of the opinion that when conducting individual's assessment to rate their own maturity level, it should be on a scale of one to ten. It is vital to recognise the Dunning-Kruger effect while asking individuals to rate their own maturity level. The Dunning-Kruger effect refers to the tendency for individuals to overestimate their competence. This indicates that excessively high dimensions or viewpoints may need more examination. These maturity levels represent an organisation's capacity to generate repeated outcomes; the farther up the curve you go, the more predictable the conclusion becomes (Killen and Hunt, 2013:131-151). The Dunning-Kruger effect refers to the tendency for individuals to overestimate their competence. This indicates that excessively high dimensions or viewpoints may need more examination (Schlösser et al., 2013:85-100).

According to the preceding ideas, portfolio management maturity does have a beneficial influence on project efficiency, and continuous growth of project delivery may be obtained through improving project, programme as well as portfolio management maturity. PPM provides an excellent method for quickly identifying and deciding which initiatives to select and carry out in order to improve their institution's capacity to support strategic goals and provide value (Ko and Kim, 2019:238).

### **3.3 Obstacles that prevent the improvement of an organisational project management**

While project management becomes a key leadership area for organised and adaptive management in a cross scenario (Beringer, Jonas and Kock, 2013:830-846) there are certainly obvious issues that organisations face when implementing PPM as a strategy to gain a competitive edge. Among the issues include a divergence from organisational strategy throughout the project review process, and an ineffective stage gate procedure that permits projects to be approved despite rigorous reviews based on stated selection process (Bathallath, Smedberg and Kjellin, 2016:67-82).

Another issue is that organisations exclude smaller projects from project portfolio eligibility criteria, despite the fact that they can be relevant within portfolio setting. According to Brady and Davies (2014:21-38), such smaller projects can be an origin of portfolio management malfunctions because they consume money and effort which must be contributing to the crucial range of project, rather than the impact beneficial qualities which could be required for the progress of other projects. (Killen and Hunt, 2013:131-151). Beringer et al. (2013:830-846) investigated the absence of effect of stakeholder approach on PPM. According to Beringer et al. (2013:830-846) a project portfolio stakeholder is any group or individual connected to a project portfolio in a way that the group or individual may influence however, it is influenced by the accomplishment of a portfolio's goal. Organisations that follow certain core concepts of stakeholder approach stand a better likelihood of portfolio achievement.

Another key difficulty involves the 'competition' amongst projects at various phases of their lifespans. While certain projects within portfolio remain at the conceptualisation or rationale phases, some remain within the implementation or even closure phases. It is hard to create a framework which examines projects in various phases, bringing them into account in a uniform and fair way, once they have distinct value offerings and at phases which cannot truly be matched (Brook and Pagnanelli, 2014:46-62).

The difficulty of PPM execution is demonstrated by its reliance on upcoming and unpredictable knowledge which must be modified as the scenario gets apparent (Killen et al., 2013:131-151). While this is valid for regular projects in standalone, such uncertainty gets increased under this case owing to the interdependence of many pieces within portfolio. This intricacy renders the oversimplified understanding of PPM like a decision-making/resource-allocation activity obsolete (Clegg, Killen, Biesenthal and Sankaran, 2018:762-772). Killen et al. (2013:131-151) also mentioned the difficulty for organisations with maintaining a compromise in handling the restricted resources available across all projects within portfolio. An efficient movement of resources between projects when priorities alter may not often be as straightforward as

anticipated, because there can be organisational difficulties outside the project portfolio manager's influence.

### **3.4 Leadership skills of an effective portfolio manager**

The field of project management is constantly changing. The success of programmes and organisations depend on project, programme, and portfolio managers. Korhonen, Laine, and Martinsuo (2014:21-37) are of the opinion that they should do a variety of tasks, possess a wide range of talent, and continue to improve their project management, general administration, and application area skills. Project, programme, and portfolio managers need soft skills, particularly leadership. Project Management Institute (2013:40) is a global professional association that offers Project Management Professional (PMP) certification and follows a code of conduct. Several software of project management and programmes are now available to support individuals in project management (PMI, 2017a:60).

Although there are distinctions, the phrases management and leadership are frequently used interchangeably. Müller and Turner (2010:437-448) describes the skills that a leader should have in order to focus on long-term goals and important objectives while inspiring others to achieve those. Managers frequently participates in daily activities aimed at achieving predetermined goals. Martinsuo (2013:794-803) alludes that managers do things properly, whereas leaders do the right things, and leaders set the vision, and managers make it a reality. Portfolio managers frequently perform the roles of a manager and a leader, according to PMI (2017a:13). In agreement with the narrative, Jonas (2010:818-831) adds that effective project managers know that people make or break projects, so they must set an example for their team members. They are visionary at leading current initiatives and developing new ones because they are aware of the larger demands placed on their stakeholders and organisations. Throughout their cautious assessment of the issue, Serrador and Turner (2015:30-39) claim that while project environments differ from one company and one project to the next, there are some skills that are applicable in all project environments. They go on to say that two of these talents are understanding change and how organisations operate in their economic, social, political, and physical environments. Project managers need to be able to lead and manage change because most projects entail both changes within organisations and changes within the projects themselves. Martinsuo (2013:794-803) is of the opinion that project managers must have a thorough understanding of the companies in which they operate, as well as how goods and services are generated and delivered. Managing a project in the construction business requires different abilities and behaviours than managing a project in the pharmaceutical or entertainment industries.

Effective project managers are imaginative, technically proficient, decisive, strong communicators, and good motivators (Levine, 2005:1). The researchers also speak out against upper management when appropriate, support team members, and promote new ideas. Based on the findings, effective leadership is the most crucial element in project success. Being a team builder and good communicator, having the highest self-esteem, concentrating on goals, displaying trust, respect, and establishing objectives are just a few of the most significant qualities and actions of good leaders (Kopmann, Kock, Killen and Gemünden, 2017:557-570).

**Table 3.4: Most significant characteristics of effective and ineffective project**

**(Schwalbe, 2012:20)**

<b>Effective Portfolio Managers</b>	<b>Ineffective Portfolio Managers</b>
Lead by example	Set bad examples
Are visionaries	Are not self-assured
Are technically competent	Lack technical expertise
Are decisive	Avoid or delay making decisions
Are good communicators	Are poor communicators
Are good motivators	Are poor motivators

**Table 3.5: Ten most important skills and competencies for effective portfolio manager**

**Adapted from Müller and Turner, (2010:437-448)**

<b>Top Ten Skills and Competencies for Effective Project Managers</b>	
People skills	Verbal communication
Leadership	Strong at building teams
Listening	Conflict resolution/management
Integrity, ethical behaviour, consistent	Critical thinking/problem solving
Strong at building trust	Understands and balances priorities

### **3.5 The role of effective portfolio manager**

Serrador and Turner (2015:30-39) state that having a hands-on Portfolio Manager (PM) is critical for project success. Kopmann, Kock, Killen and Gemünden (2017:557-570) expands on the roles and indicates that project portfolio manager's major responsibility is to align the



strategy of the company with project execution. The authors explain that a portfolio manager, unlike with a project manager, is more concerned with project selection than task breakdown. While a project manager is primarily focused on the 'how,' a project portfolio manager is more concerned with the 'what' and 'which.'

Martinsuo (2013:794-803) argues that portfolio manager's main duty is to be aware of the organisational constraints that have an impact on the project. Examples include price, time, infrastructure, and human resources. The portfolio manager will be guided in their project selection by these limits, as well as the organisation's strategic goals. Every project they choose will need a financial, time, and other restricted resource commitment. According to Beringer, Jonas, and Kock (2013:830-846), a portfolio manager's success depends on their capacity to work effectively with both internal teams and external project teams.

Hyväri (2014:229-236) highlights some of the principal duties of a project portfolio manager, including but not restricted to:

- Project request management
- Resource allocation and management
- Risk management
- Identify and reduce inefficiencies
- Collaborate with senior stakeholders
- Change management
- Tracking business return on investment of projects

Portfolio managers are engaged in four stages of PPM (Jonas, 2010:818-831). Despite the growing interest in project portfolio management (PPM), there is still limited research on the project portfolio manager's function (Blomquist and Müller, 2006:20). The very first stage (portfolio structuring) requires establishing a goal portfolio based on the organisation strategy. This phase includes the evaluation, prioritisation, and selection of projects as well as proposals that ought to be in line with the organisational objectives (Meskendahl, 2010:807-817). PPM also allows senior management to outline the market, products, as well as technology that will be used to put the company's plan into action (Patanakul, 2015:1084-1097). To maximise the prospects of project portfolio success, it is critical to have good information quality and openness (Patanakul, 2015:1084-1097).

Only portfolio-related concerns are addressed in the second phase (resource allocation) (Jonas, 2010:818-831). This phase seeks to maximise resource usage, which is one of the primary issues in the PPM literature (Killen et al., 2008:24-38; António and Mandalena, 2009:25; Pajares and López, 2014:645-652). Resource management includes cross-project resource management, dispute resolution, structured resource approval, and resource

reallocation in responding to short-term change requests (Jonas, 2010:818-831). Because it provides initial resource allocation, this phase is closely linked to the portfolio structure phase, but it must be continuously reallocated and maintained.

Müller et al. (2008:28-42) define the third stage (portfolio steering) as a continual management of responsibilities to coordinate the portfolio of projects. Monitoring the portfolio's strategy alignment, establishing portfolio corrective measures if the portfolio deviates from the planned aim, recognising portfolio synergies, and coordinating initiatives across business lines are all included in this phase (Jonas, 2010:818-831). The availability of information to management is critical for these capabilities and PPM procedures (Kopmann et al., 2014:529-543).

The final stage (knowledge acquisition and portfolio exploitation) focuses on the activities that take place at the end of the project's life cycle: portfolio utilisation, organisational learning, and project success assurance. Project outcomes assessment, post-project evaluations, maintaining and storing essential information upon project closure, and leveraging lessons gained from previous projects are all included in the fourth phase (Jonas, 2010:818-831). Koners and Goffin (2007:242-258) is of the opinion that the development of lessons learned, and post-project evaluation contribute to the advancement of project management techniques and, as a direct consequence, project success.

### 3.6 Challenges of PPM

PPM approaches may offer several benefits with project management, resource allocation, scheduling, analysis, and project and company governance, among other things (Joslin, 2015:10). However, Oosthuizen (2017:60) states that companies, on the other hand, have challenges while implementing PPM. A survey of the literature revealed six significant issues that businesses encounter while managing multi-projects or using PPM methods. Insufficient information issues, for instance, may make it difficult to choose the appropriate projects for activities at the portfolio level.

**Table 3.6: PPM Challenges (no particular order)**

**Adapted from Oosthuizen (2017:60)**

Problem level/area	Challenge Project
Project level activities	Projects aren't executed properly.

Portfolio level activities	Too many weak projects are approved; resources, value, and priority not properly considered.
Portfolio competencies and methods	Planning and management methods and tools are insufficient.
Link to strategy	There isn't a clear link between strategy and strategic criteria.
Resources management	There is ineffective resource allocation, as well as a lack of regard for smaller ventures.
Information management	Information flow is insufficient and ineffective.

### 3.7 Inadequate portfolio level activities

Activities at the project level are insufficient. Poor portfolio performance is closely connected to poor project management (Martinsuo and Lehtonen, 2007:56-65). However, Blichfeld and Eskerod (2008:357-365) identified the following management issues that impede project success: (1) Projects are not completed as planned; (2) management and personnel lack a comprehensive grasp or overview of work progress. (3) Allocation of resources. Tsotetsi and Mugova (2018:2462-2475) identify two major issues with project level activities: projects that are too large and complex to effectively execute in detail, and a lack of project progress monitoring execution. In their investigation, Rayhan, Alam, Dewan, and Ahmed (2022:100077) found five key issues with portfolio level activities: (1) Projects overlapped among portfolios and within single portfolios; (2) project results were not integrated; (3) portfolio managers lacked consideration when making critical project decisions; (4) roles and responsibilities were unclear; and (5) the portfolio level provided insufficient feedback to the project level (Guo and Xiao, 2014:3131-3134).

### 3.8 Portfolio competencies and methods

Competencies and strategies for a portfolio and several mathematical portfolio assessment approaches are seen by managers as being too complex to apply, and they often fail to grasp the interdependencies between projects and the resources utilised. Historically, portfolio techniques have provided inadequate risk and confusion treatments, and portfolio managers have discovered it challenging to manage the many and interrelated criteria (Oosthuizen, 2017:61). Portfolio managers must be knowledgeable about markets, companies, projects, implications interdependencies, financial management, risks, resource aligning, mathematical analysis, political skills, effective communication, and analytical and statistical abilities, to name a few. Finding managers who are skilled in these areas and can make appropriate

judgements about which projects to include in the portfolio is difficult (Young and Conboy, 2013:1089-1100).

### **3.9 Lack of strategic connections**

The project portfolio may not necessarily match the company's strategy. There are disconnects between project expenditure breakdowns and corporate strategic goals (Mehta, and Mehta, 2011:30-57). In a survey of product (physical product) and service providers, Killen et al. (2008:24-38) discovered that the necessity for a portfolio to represent strategy is a frequent difficulty; numerous respondents underlined the difficulties of long-term strategy and vision. According to Buys and Stander (2010: 59-68), the most common criticism leveled at project managers is that projects appear "randomly," there is uncertainty about the number and scope of projects, and the projects appear unrelated to the strategy. As a result, employees may feel as if they are working at opposite extremes or on too many (some unnecessary) tasks. Patanakul (2015:1084-1097) alludes that insufficient strategic criteria for project selection can result in the following outcomes: projects chosen lack strategic direction, projects are not strategically aligned with the organisation's strategy, unnecessary projects are added to the portfolio, and unnecessary R&D spending does not replicate the business's projected strategic priorities.

### **3.10 Resource management**

Blichfeldt and Eskerod (2008:357-365) conducted an empirical analysis of 30 businesses (from a variety of sectors) that all had resource-related issues or symptoms. Their research discovered that allocating and managing resources for each project or exploratory project is crucial; failing to do so might result in a resource shortfall throughout the whole portfolio. Many scholars consider resource allocation to be one of the most important aspects of PPM (Jonas, 2010: 818-831), and that it should be in line with the organisation's strategy (Martinsuo and Lehtonen, 2007:56-65). Balancing resources within the portfolio according to talent and importance might be difficult at times. These are the Identified two causes for resource allocation failure: (1) The effects of the management accounting system may not be optimal for managing multiple projects, and (2) Project managers may exaggerate the urgency or importance of a project in order to secure better resources (Martinsuo and Lehtonen, 2007:56-65).

### 3.11 Information management

Problems might arise due to a lack of openness and quality in project information. Information is not transmitted often enough, and management and staff are not always fully informed. When it comes to project information, there are occasions when there is a shortage of adequate databases (Elonen and Artto, 2003:395-402). Based on the information used on the projects, new projects should be added to or removed from the portfolio, without reliable information, the wrong projects may be selected. Accurate data is difficult to get by; new product portfolio management deals with future occurrences and prospects, making data unclear and sometimes incorrect (Constantiou and Kallinikos, 2015:44-57). Gaining executive level support as well as assurance, developing a portfolio perception across projects, having accurate information and enough time to perform PPM are all topics covered in a number of studies, but identifying the key PPM challenges still poses a significant challenge (Oosthuizen, 2017:65).

When employing an adaptive decision-making method (Bessant et al., 2011:45-356), most organisations have difficulty selecting particular projects (Meskendahl, 2010:807-817). While numerous PPM studies emphasise the importance of selecting a certain set of projects, they neglect to look at the challenges that arise throughout the selection process (Bessant et al., 2011:45-356). PPM research have not provided a complete picture of how selection and project prioritisation procedures are really described in PPM. As a result, further research is necessary to discover the particular kinds of procedures used for project evaluation and selection. Through an evaluation of PPM studies as well as insights based on decision-making principles, the issues of analysing and choosing alternatives and projects are described below (Danesh, Ryan and Abbasi, 2018:75-94).

**Table 3.7: A summary of the key PPM challenges**

**Adapted from Danesh, Ryan and Abbasi (2018:75-94)**

Challenging factors	Description
Sensitivity analysis/uncertainty treatment	A decision assessment involves different inputs which may not be entirely specific (e.g., insufficient data, inaccurate cost information, an undetermined completion period, and little knowledge of the resources and benefits).
Dependencies	For effective decision making, the interdependencies in portfolios with several projects need to be known. Every programme depends on the others and may be linked by many different dependencies. Often, as projects in portfolios are very interdependent in nature, all of them must be considered in every step of a decision-making process.
Decision traceability	To deal with PPM complexities (e.g., uncertainty and dependencies), it is essential to keep track of data and ensure

	that critical data is not eliminated and/or unnecessary data incorporated.
Simplicity	While most decision-making methods are very difficult to understand and/or apply, DMs are unlikely to use one that is not effective and simple. Also, as there is an overall lack of a framework for arranging these methods, choosing simple ones is one of the key elements for multiple decision making.
Quantitative and qualitative techniques	The strategic arrangement of projects in a portfolio, which is extremely critical, requires both quantitative and qualitative techniques.
Number of projects	As the number of possible projects in a portfolio can be enormous, the method used to solve decision challenges cannot be restricted to dealing with a certain number of items or options which is the case in some techniques.
Trade-offs/conflict	There are several, usually inconsistent, targets linked to the selection of programmes, with prioritising them a challenging task. As non-compensatory methods fail to permit trade-offs between elements, only compensatory ones are selected for detailed analysis in this study.
Group decision making	Large and difficult decisions, especially at executive senior management levels, often require several DMs operating in groups.
Mutual link between projects and strategic levels (hierarchical structure)	PPM is generally set up at several levels, with its decision-making methods very complicated and usually requiring large amounts of input information. To minimise these types of issues, a portfolio needs to be structured in a hierarchical way so that each phase can begin from a top-down (strategic level) or bottom-up (project/operational level) perspective and examine the maturity of all levels in a PPM process (e.g., project, programme and portfolio management/strategic ones).

### 3.12 Best practices and benefits of effective PPM

Through establishing a standardised method to managing projects on size, good PPM practices offer depth and maturity to businesses. They both provide quantitative and qualitative advantages, putting them at the center of project success. A PMI survey found that companies with mature PPM strategies successfully complete 35 percent more initiatives, fail less frequently, and incur less financial loss. Long-term, all these benefits result in higher consumer satisfaction (PMI, 2013:15). According to Killen and Hunt (2013:131-151), PPM has a slew of additional benefits. When a company is working toward a large goal, such as responding to upcoming regulatory changes, it is easier to focus on facts rather than subjective elements. Hyväri (2014:229-236) agrees with Killen and Hunt (2013:131-151) that PPM enables you to take a step back and think through how the necessary adjustments will impact project risk and benefit as well as whether this will have an impact on the overall evaluation for portfolio inclusion.

- Do the changes cause the project's alignment with the organisation's objectives to suffer?
- Do the changes cause the project's alignment with the organisation's objectives to suffer?

- Is the impact of the rules short- or long-term? What time will they begin?
- Do the rules appear to be temporary or will they be in effect for a considerable amount of time?
- How will the new regulations affect the project's workflow and schedule?
- Will this require any kind of follow-up actions, like training or change management?

The decision-making process and risk mitigation may be aided by PPM. Additionally, PPM fosters a cooperative rather than a competitive environment within the company, which improves resource efficiency. Internal departments, for instance, do not need to compete for IT engineers to accomplish the same goal, freeing resources to focus on other objectives like improving customer service or the return on investment (ROI). Due to the increased interest in project management, there has been a growth within portfolio management literature. The selection methods and models that research and development projects must consider have received a lot of attention from researchers (Ojiako, Petro, Marshall and Williams, 2021:1-15.). Specific project selection criteria are frequently combined with optimisation methods or management techniques in order to gather, prioritise and select projects.

According to De Mare et al. (2015:16022-16038) there are two types of project selection approaches: financial and nonfinancial. There are many options, from single-criteria (cost-benefit analysis) to multi-criteria (ranking or scoring) methods and techniques. The criteria's purpose is to compare and measure each project's contribution to the organisation's strategy, rather than to designate projects. Several research project selections have produced a solid set of variables to consider, such as market size, likelihood of success, strategic advantage, personnel availability, and risk (Killen, 2013:1-14). Thus, by allocating resources toward the most lucrative projects, an organisation can attempt to improve the effectiveness of its projects (Oosthuizen, Grobbelaar and Bam, 2016:238-250). At the same time, the portfolio of projects as a whole and the resource allocation can be monitored and adjusted to fit the changing environment. Kaiser, Arbi, and Ahlemann (2015:126-139) contend that case-specific PPM is most effective. Although there isn't a single best practice, all PPM programmes share a number of similar elements, themes, and success factors. Organisations may profit from best practice PPM adoption and implementation in a variety of project contexts or industries due to certain widely accepted PPM characteristics that seem to transcend industry types, portfolio level, as well as project type.

### **3.13 Effective Project Portfolio Management Best Practices**

PPM is broken down into a number of sub-disciplines, and each company uses it in a different way. Although some people might prioritise resource management, others might choose ongoing project visibility (Oosthuizen, 2017:62).

**Table 3.8: Collection of recommended practices along PPM path**

(PMI, 2013:60)

Practice	Purpose
Understand the company strategy:	Project portfolio management is all about aligning projects with a business strategy, it is crucial to first comprehend the strategy and how it evolves. If the main goal shifts from boosting productivity in certain global markets to concentrating on product innovation, PPM goals will have to alter as well.
Identify the correct range of projects:	Companies often confuse activity with progress. Even if a bad project is brilliantly completed, it is still a failure since it does not take the organisation ahead in a strategic direction.
Creating a Project Management Office (PMO) is a good idea.	The establishment of a PMO to manage PPM operations formalises procedures and empowers employees. It indicates the PPM approach's endorsement from top executives.
Create project assessment standards:	As projects are thrown about for review, it is critical to establish consistent criteria and a checklist of metrics against which to evaluate them. Only in this manner can an apples-to-apples comparison be made.
Formulate a risk management strategy:	Portfolio managers may decrease risk by doing a risk-versus-reward analysis utilising PPM models like cost-benefit analysis and ECV, and investing in projects that provide the best returns.
Create a change management strategy:	The only constant is change. Markets shift, technology advance, and consumers' needs shift. All of these are anticipated by a change management approach. Metrics, when correctly chosen, may generate alerts that lead to appropriate and timely reactions to unanticipated changes.
Use a PPM tool	Using a PPM solution may assist simplify the complexities of PPM by allowing you to merge tactical project controls with strategic project selection. Portfolio managers may make the most of PPM by using tools and software to keep track of portfolio KPIs.

### 3.14 Benefits of applying effective Project Portfolio Management

Four significant problems arise for organisations without PPM processes in place: a portfolio that is unbalanced; projects that are disconnected from strategic goals; projects that do not add value to the portfolio; and projects that are overly active . Lack of project coordination, late project delivery, unforeseen resource bottlenecks, competing project goals, unhappiness with deliverable project benefits, cross-functional cooperation, and reluctance to organisational changes are some of the other issues. Successful PPM may offer a business additional benefit in addition to the triple constraints of time, quality, and cost (Meskendahl, 2010:807-817). According to Bhaskar's study, which used a structured survey to examine the benefits of PPM in the manufacturing industry, the following benefits or advantages were found (2016:25):

- (1) Selecting the ideal project or product;
- (2) Allocating funds to the proper business sectors



- (3) Reducing efforts on redundant products and projects
- (4) Doing away with plans for rigid projects
- (5) Optimal resource distribution
- (6) PPM's contribution to greater cost savings
- (7) Product/project levels that are in line with business strategy
- (8) Effect on revenue
- (9) Determining and addressing gaps in the product portfolio
- (10) Helping to close gaps in the product portfolio
- (11) Selecting the best technology to accommodate changing market conditions

Oosthuizen (2017:56) states that it is worth enhancing the organisation's ability to analyse actions performed using PPM. Portfolio management enhanced the firm's market position significantly compared to rivals, as per Blomquist and Müller (2006:30). According to them, the implementation of PPM was prompted by bad financial performance and perception. According to Reyck, GrushkaV Cockayne, Lockett, Calderini, Moura, and Sloper (2005:524-537) when using PPM methodologies, some of the following advantages may be expected: (1) optimising the value of investments while avoiding risks; (2) increasing communications and aligning company leaders; (3) improving resource allocation and canceling certain projects This backs up the research that says PPM is a methodology that combines organisational emphasis by picking projects that are aligned with the strategy, as well as the PM focus of completing projects efficiently and on time (PMI, 2013:25).

### **3.15 Portfolio success**

Oosthuizen, Grobbelaar, and Bam (2016:238-250) mentions that researchers have been attempting to uncover the attributes that influence project performance for a long time. A list of factors has resulted, but no broad agreement has been established. Meeting or exceeding expectations and objectives is a wide definition of success. Each project is unique and has its own set of objectives that must be completed, as well as a distinct manner of measuring success for each one. Project success variables are also valuable for determining why projects succeed or fail, but they cannot be used to determine the degree of success. Oosthuizen (2017:60) argues that as a result of ambiguity many critics and discussions have arisen as a result of the ambiguity as well as lack of scientific evidence on success and failure. Organisations' managerial attention has turned to the effective relationship between project portfolio management and the overall business goal (Wyzalek, 2022:162-166).

### 3.16 Success Criteria vs. Success Factors

Researcher opinion on the distinction between success criteria as well as success factors is still divided. According to Lindner and Wald (2011:877-888), success criteria are used to determine whether a project or business will succeed or fail, whereas success factors are the management system's contributions that make a project or business successful either directly or indirectly. Therefore, one can assert that the word 'success' can be subjective. Across all sectors, success is defined differently; project circumstances vary, and so does the concept of success (Teller and Kock, 2013:817-829). Many studies have shown that financial measures alone are insufficient for determining long-term success (Voss and Kock, 2013:847-861). Wyzalek (2022:162-166) concurs with the previous statement that companies' managerial attention has turned to ensuring that project portfolio management is linked to the overall business goal (Arto and Dietrich, 2004:1-33); Dietrich and Lehtonen, 2005:386-391). Beyond the project constraints of time, money, and quality, successful PPM might provide extra advantages to a business (Meshendahl, 2010:807-817). Killen et al., (2008:24-38) demonstrates in their relationship between variables of a variety of service and manufacturing sectors that there is a strong link for both project portfolio performance metrics and new product success.

According to Meshendahl (2010:807-817), one of the objectives (maximizing value) can be divided into two components: (1) average single-project success (time, quality, cost, and customer satisfaction), as well as (2) project synergies. According to some scholars, the following aspects of project portfolio success are important: (1) average project success; (2) portfolio balance; (3) strategic fit; (4) synergy exploitation; (5) future planning; and (6) macroeconomic factors (Meshendahl, cited by Teller and Kock, 2013:817-829).

As per the project management literature, the value of a portfolio can be maximizing if the right factors, such as project type and resource sufficiency, are balanced (Teller et al., 2012:596-607). Voss (2012:567-581) argues that strategic fit is the consequence of a match between aspects such as strategy, technology, environment and structure. The depth to which the portfolio embodies the company's strategy is measured by portfolio strategic fit. However, Costantino, Di Gravio, and Nonino (2015:1744-1754) states that, projects will no longer be only operational instruments for implementing strategy but will instead become engines that push strategy in the desired directions.

Ever since Costantino et al. (2015:1744-1754) introduced project success criterion, researchers have placed a greater emphasis on planning for the future. In more recent research, this metric is used to assess portfolio performance rather than single-project success

(Jonas, cited by Teller and Kock, 2013:817-829; Voss and Kock, 2013:847-861). The capacity of a corporation to grab possibilities that may occur in the future – long-term factors such as markets, ideas, inventions, products, skills, and technology is referred to as preparing for the future (Costantino et al., 2015:1744-1754).

The top six success criteria identified in the literature are (1) projects aligned to strategy; (2) portfolio balance; (3) average single project success; (4) use of synergies; (5) future preparation; and (6) maximizing value. Meskendahl's (2010:807-817) reasoning of maximizing value criteria divided into use of synergies criteria and average single portfolio success criteria could narrow the success criteria to three, but how success should be measured depends on the researcher's or practitioner's choice, project, and interpretation. Oosthuizen (2017:113) indicates that the success factor dimension of single project level activities and features is connected to the criteria of average single project success, making it crucial in this research. Although synergy criteria are significantly more often employed, financial approaches make it simpler to quantify value maximisation since they are less reliant on project kinds.

### **3.17 Four main categories of success factors**

Portfolio success elements are important factors that must be present in order for a portfolio to achieve its desired objectives. Although the factors may not be held solely responsible for the portfolio's success or failure, addressing them would help the portfolio succeed (Marnewick, 2015:21-27). The following are the four types of portfolio success characteristics outlined by Wyzalek (2022:162-166). (1) project-level characteristics and activities; (2) multi-project-level characteristics and activities; (3) correlation between projects and the strategy process; and (4) disposal and quality of project information.

#### **Single project-level characteristics and activities**

Martinsuo and Lehtonen (2007:56-65.) discovered that single project management is related to portfolio management efficiency in their study of a number of businesses. According to their quantitative analysis, single-project characteristics such as main objective, decision-making, and information availability are linked to portfolio management efficiency. Because a portfolio is comprised of projects, it stands to reason that single-project success drives portfolio success. According to Meshendahl (2010:807-817), single-project success is one of the main criteria in project portfolio success.

The importance of single-project management skills and PPM efficiency measures was highlighted by Martinsuo and Lehtonen's findings (2007:56-65). They continue by stating that companies should put more emphasis on how they go about connecting single project

management skills and PPM efficiency techniques. While some companies design and set up separate PPM systems, others combine the ideas to create individual project management systems.

### **Multi-project-level characteristics and activities**

Effective and efficient single-project management is no longer sufficient for success or gaining a competitive edge, but a planned and proactive management strategy may be the answer (Heising, 2012:582-595). According to the literature, single projects should not be thought of as separate things Too and Weaver (2014:1382). Instead, they ought to be addressed within the elaborate framework built by the project or programme portfolios to which the programme or project belongs. Some writers have referred to the multi-project arrangement as "project portfolio management" (Martinsuo and Lehtonen, 2007:56-65). According to Alexandrova, (2016:117-125), managing a portfolio of projects yields greater advantages than managing individual initiatives. In their research, Elonen and Artto (2003:309-402) discovered that the most commonly reported difficulty in portfolio level processes is task and project overlap. Although portfolio management may be difficult, appropriate management and procedures can reduce effort and risk while enhancing synergies such like resources, expertise, marketing, and technology (Alexandrova, (2016:117-125). According to Patanakul (2015:1084-1097), portfolio management effectiveness may be improved by increasing the portfolio's responsiveness to internal and external changes. The outcomes of PPM and its impact must be observable and extend beyond particular projects in order to analyse PPM and its consequences (Dietrich and Lehtonen, 2005:386-391; Martinsuo and Lehtonen, 2007:56-65). However, financial metrics and models have traditionally been employed by companies, but they have been shown to be inadequate indicators of a company's long-term performance, leading to a rise in the usage of a number of measuring models (Meskendahl, 2010:807-817). According to Killen and Hunt (2013:131-151) research, strategic approaches may result in better project alignment with company strategy, while portfolio mapping methods can result in better portfolio balance. The score algorithms that are used to rate projects are another prevalent approach.

### **Link between projects and strategy process**

According to strategy development writings, the strategic fit is the coordination of the business strategy, the functional strategy, and the project plans (Patanakul 2015:1084-1097). Studies have shown that such congruence improves business outcomes (Kock, Heising, and Gemünden, 2016:115–129). One of a portfolio's most crucial objectives and challenges is the interaction between projects and strategy (Voss and Kock, 2013: 847–861). According to the PPM literature, choosing as well as prioritising projects centered on the organisation's strategy is a good idea (Martinsuo and Lehtonen, 2007: 56–65.). To supplement the objectives of single

projects, PPM seeks to execute the correct projects that establish a link from projects to the strategy, while also achieving long-term success (Elonen and Artto, 2003: 395-402). A strategic management idea, according to Kock, Heising, and Gemünden, (2016:115–129) is to define and track project performance in order to align project activities with the organisation's short and long-term goals. As a result of rapid change and global competition, organisations must adapt quickly and become more competitive. According to Kock, Heising, and Gemünden, (2016:115–129), projects must be seen as strategic weapons that provide a competitive edge and the economic value; project leaders must adopt the position of strategic leaders who are accountable for project business outcomes. Projects will no longer be only operational vehicles for carrying out strategy; instead, they should be the key driver behind new strategic orientations. Increased manageability and management across numerous projects, causing in stronger linkages within projects and strategic goals, is a common quality or goal across a range of techniques (Dietrich and Lehtonen, 2005:386–391). Through PM efficiency and meeting individual project objectives, Martinsuo and Lehtonen (2007: 56–65.) discovered a favourable indirect association between precisely described goals (scope, costs, and time) and portfolio management efficiency. According to the research, the portfolio selection technique should be tailored to the features and strategy of the surrounding business (Alexandrova, 2016:117-125). Voss, and Kock, (2013:847–861) discovered a favourable association between the portfolio selection based on the organisation's strategy and the selection of projects for the portfolio. Portfolio management-driven businesses are also more evolved in their decision-making methods than multi-project organisations that are less mature.

According to Müller and Jugdev, (2012:757–775) to use a strategic technique could result in a better alignment of the project with the company strategy. Institutions that successfully manage strategic alignment in multi-project contexts investigate and analyse current project goals as well as their connections to strategic planning (Dietrich and Lehtonen, 2005:386–391). The portfolio should be reviewed on a regular basis to make sure that the projects, portfolio, and resource allocation are in line with the business strategy. If the projects, portfolio, and resources are regularly monitored, corrective actions (such as resource re-allocation and re-scheduling) may be implemented if overruns occur (Pajares and López, 2014: 645-652). This procedure is constantly evolving and adapts to changes in the portfolio. Project ranking changes when new projects join the portfolio and old ones leave. As a consequence, because they are all fighting for the same limited resources, priority changes but also projects could clash.

### **Project information accessibility and quality**

Martinsuo and Lehtonen (2007:56–65) discovered that the availability of project information was the most important aspect (for decision makers) that led to PPM efficiency, both directly

and indirectly, via PM efficiency. Oosthuizen et al., (2016:238-250) discovered a link between projects, programme reporting, and portfolio management when they looked at multi-projects. The portfolio manager, as well as everyone else involved with in portfolio management process, is affected by information. Portfolio managers, portfolio groups, senior management, and as well as stakeholders require accurate information about the portfolio's status since it provides a holistic view of the organisation's current strategic direction.

Relevant data is required to make well-informed judgments; by solving the information issue, other portfolio management issues may be addressed (Joslin, 2015:7-11). According to Oosthuizen, (2017:65) before making strategic judgments on the project portfolio, internal competences and external environmental data should be carefully reviewed; information ought to be relevant and easily available. The 'analytical posture' refers to a company's capacity to produce data in a methodical manner to gain a competitive edge. Transparency and information exchange, however, are often lacking. Personnel may be overwhelmed with information, or they may not always be instructed on what information to use, who it should be sent to, how it should be delivered, or in what format it should be sent (Porumbescu, 2015:205-213). Overall quality of the information is a constraint when utilising business cases to pick a project portfolio. A strong business case, according to Kopmann et al. (2014:529-543), may be a factor in project portfolio success. This statement is in line with Patanakul's (2015:1084-1097) assertion that more visibility leads to increased efficacy in project portfolio management.

### **3.18 Chapter Summary**

Alexandrova (2016:117-125) is of the opinion that implementing PPM techniques as a means of improving project portfolio management's efficacy reveals that managerial systems play a critical role in meeting strategic business goals. PPM is concerned with the big picture, with how an organisation's initiatives interact to accomplish strategic and ROI goals, according to Patanakul's (2015:1084-1097) viewpoint. For instance, project management may be concerned with ensuring that the right people are assigned to the right tasks for a specific project. PPM, on the other hand, examines each project's place within a portfolio and makes sure that the portfolio is operating effectively. Literature evaluation reveals the links between firm strategy, project portfolio, ongoing projects, and practice. According to the literature, project portfolio management faces human issues in managing project portfolios, and there is a need to increase project portfolio management's efficacy. Oosthuizen, (2017:60) outlines that to ensure effective communication, the elimination of obstacles, and the backing of senior management, the leadership should be engaged and arrange frequent evaluations and supporters.

## **CHAPTER FOUR**

### **RESEARCH DESIGN, RESEARCH METHODOLOGY, SAMPLING, DATA COLLECTION INSTRUMENT AND METHODS**

#### **4.1 Introduction**

An overview of the research methodology used in this study is provided in this chapter. The method, framework, and design used to gather the data required to respond to the questions and objectives stated in Chapter One are referred to as the methodology. The research methodology chapter concentrates on the methods that the researcher used to perform the investigation. This chapter covers the research design, data collection methods, sampling procedures, and data analysis techniques. A discussion on ethical considerations concludes the chapter. Science has advanced, resulting in a better knowledge of the techniques, processes, and approaches that must be addressed to conduct a credible and trustworthy research. The research design describes the study route and activities. The research methodology outlines the procedures to be followed when conducting research design activities (Jawah, 2015:77). According to Creswell and Poth (2016:6) converting the data to information, and then interpreting the information, identifying a problem, determining the suitability of information in relation to the problem, analysing the data gathered, converting the data to information, and thereafter interpreting the information are all steps in the research process.

#### **4.2 Research design**

According to Jawah (2015:45), a research design is the overall strategy used to conduct a study and is referred to as a road map to be followed while examining the data and information necessary to address the question or topic at hand. The data, the tools and techniques used to analyse the data, as well as the research questions, are all included in the research design (Ritchie, Lewis, Nicholls and Ormston, 2013:112). The study used a mixed-method approach to gather data through questionnaires to gain a thorough understanding of the critical success factors for efficient portfolio management in achieving strategic goals for the completion of capital projects (Mollick, 2014:1-16).

A research design is the road map to be followed or steps / activities to be followed during a research, primarily stating what is to be done. Once the problem statement has been formulated, it becomes important to state what is to be done and what steps are best to get the most from the research. According to Mouton (2008:55) there are a few questions that

need to be asked to guide in the selection of an appropriate research design. These are, namely;

4. What kind of study are you going to conduct?
5. What or how does a research design look like?
6. What design will best suit my research study?

Jowah (2015:78) posits that the most relevant and effective research design must assist in putting together controls necessary to mitigate any errors in the processes. The research pre-determines the way the research will be carried out, including data collection planning and processes. The research proposes guiding questions in this regard as stated in table 9.4 below.

**Table 9.4 Questions to be answer in the creation of a research design**

What are we going to study about?	How will we measure these variables?
Who is our population to be studied?	How will the sample be selected?
What will be the most ideal sample size?	What will we use to collect the data?
What ethical issues are important?	How will we analyse the data?
Who will make use of the data?	How will the findings be reported?

**SOURCE: Jowah, 2015:78**

There are different types of reach designs that can be adopted for the study, but depending on the purpose and objectives for the study, there are research designs more appropriate than the others. The researcher considered the descriptive research design to be appropriate for the phenomenon under consideration after specific considerations. Descriptive Research Design is a form of data and information gathering / collecting process that assists in the description of the status quo (Doyle, McCabe, Keogh, Brady and McCann, 2020:443-455.).

This design makes clearer and provides both depth and breadth in the understanding of a situation in a way that enables better understanding a drawing together of relationships of the variables understudy. **Cresswell, (2012: 645-653)** opines that the descriptive research design allows for the simultaneous use of both qualitative and quantitative research designs, and some common applications of this design are, namely;

4. Describes events / situations and allows for inferences and a deeper understanding of causal relationships between the variables understudy
5. Permits for the measurement of central tendency through the use of percentages, median, mode, mean, variation or deviation from the mean
6. Assists in answering research questions like what, when, who, where and how as it relates to the problem statement under investigation



### **Disadvantages of the descriptive research design**

The researcher examined closely the disadvantages of the descriptive research design and identified the following as negatives for the use of this design; there research does not assist with, namely;

- The research design depends heavily on the use of techniques and tools for the effective measurement of the phenomenon.
- If observation is used for the collection / gathering of data which is qualitative, this cannot be repeated with the same results
- It is not always possible to use the results to prove or disapprove hypothesis nor can they help in explaining clearly “how.”

Research experience over the years has proved that there is no one-type-fits-all situations research design that can apply best in all situations. Each design has its own merits and demerits, and it is up to the research to choose the most appropriate research design as they see it fit (Dixit, 2021:3318-3324). Needless to state that different researchers will have different choices depending on how they perceive the problem at hand, though this design has the noted disadvantages, it has the following benefits, namely.

### **Advantages of the descriptive research design**

Though this research design has its own demerits, it cannot be ignored that it possesses some positives that are suitable for the research at hand. The design is ideal for adequately understanding the status quo of the phenomenon under study. This assists in understanding better what the situation is like, thus it is conducted under certain conditions, namely;

6. Can be used as a pre-cursor in preparation for more quantitative research on the problem
7. Assists in pointing out what variables should be, can be ideal or worth for testing quantitatively
8. Help in identifying limitations to researching on the subject and allow for the development of more focused study
9. Can collect data that might assist in the generalisation of the findings and helps in the development of theories
10. It is compatible with the simultaneous use of qualitative and quantitative (mixed research methodologies) methodologies.

In the researcher’s mind considering what the objectives of the study were and the intended use of the information, the advantages outweighed the disadvantages. The mixed research methodologies were applied to enable a full understanding of the phenomenon by providing both breadth and depth on the situation. The mixed research methodology itself has its on merits and demerits which were considered by the researcher. Mixed research methodology,

like any other research tool or technique in existence will have its own strengths and weaknesses.

### **Weaknesses of the mixed research methodology**

There are positives in using mixed research methodology, however it is important to state also some of the glaring weaknesses of the methodologies, briefly listed below, as, namely;

3. **It may be expensive:** more time and special human resources are required to put together a water tight mixed research methods design.
4. **Difficulty in interpreting findings:** too often the findings are confusing and may create problems in understanding how to interpret the findings. There is need to understand both quantitative and qualitative data analysis processes.
8. **Interrelationship:** there is a link between the approaches in that one does certain aspects of the phenomenon and may not be able to do the other, and vice versa.
9. **Extending the scope of the study:** the researcher may use qualitative research findings to augment the findings from a quantitative approach, and vice versa and may have to analyse for (Palinkas, et al., 2011:23).

### **Advantages of Employing Mixed Methods Research**

Mixed research methodology involves the use of qualitative and quantitative research in one study, sometimes one after another or simultaneously. Qualitative research depends on the views of the researcher about what the participants are saying and is generally subjected to analytic induction leading to establishing of common themes. This is characterised by open-ended questionnaires, focus groups discussions, interviews and observations among other things. Contrast this with quantitative research which focuses on collection of numerical data that can be statistically analysed. This is characterised by use of structured questionnaires with closed-ended questions, performance tests, and open-ended questions that can be structured to quantitative data (Likert scale).

Increasingly researchers opt to use both methodologies in the same study to create a better and bigger picture of the situation under study (Cresswell, 2012: 645-653). A research design that combines qualitative and quantitative approaches in the same study (at any stage) is considered to be mixed research methodology. Some of the aspects that may be used at the different stages may be, the development of the research questions, data collection approaches, and data analysis systems used to reach to a conclusion. Mason (2006: 103-124) asserts that the use of both quantitative and qualitative in the same research provides the potential for understanding the contexts of experience ability for social explanation and generalization.

## Advantages

The use of both methodologies (mixed research methodologies) has positives in most research where it is used, especially in social sciences, political science, health sciences and any studies that may involve a human being. Some of the advantages are, namely;

10. **Synergy:** integrating the two in one research permits or provides a more complete and synergistic use data that gives better understanding of complex phenomena than if each method was used without the other (Fetters & Freshwater, 2015:203-213).
11. **The two complement each other:** results coming from analysis using the two approaches can be compared after collecting data from quantitative and qualitative simultaneously. Side-by-side discussions can be conducted to compare the data and qualitative data may be converted to quantitative sets and then the data can be validated.
12. **Contextualised and detailed research:** enjoys the strengths of the two approaches in providing a holistic picture of the context under study. This provides a more contextualised view because of qualitative data and high validity because of the quantitative data.
13. **Offsets Weaknesses:** qualitative data is generally considered as subjective with low external validity because of biased interpretations. On the other hand quantitative data instead has high external validity, thus both methods together can offset the weaknesses of both.
14. **Flexibility - elasticity:** mixed research approach is not tied to strict research paradigms thereby allowing the researcher put together the different aspects of the study and construct a research design relevant to the study context and more appropriate for effective information gathering.

The researcher applied a mixed method approach to the research, incorporating both qualitative and quantitative methodologies, and is commonly used when a researcher utilized a pragmatic paradigm (Jowah 2015:102). These two methods have strengths and limitations; however, the research used both methods (mixed method) to capitalise on the strengths of each. Due to nature of the research study, both approaches were utilised to allow for both data quantification and perception measurement using the Likert scale. The structured questionnaire was divided into three sections: Section A (biography), Section B (Likert scale perceptions), and Section C (closed and open ended questions). Participants were given a questionnaire comprising both closed and open-ended questions, with the purpose of ensuring that the data acquired was analysed in a way that produced valuable and reliable results (Cooper and Schindler, 2011:151). Qualitative research is often seen as subjective and influenced by personal bias, whereas quantitative research is regarded as empirical and objective (Creswell, 2013:5). To ensure the credibility of qualitative research, it is best to draw

as broad a sample as possible otherwise the study would be skewed and non-objective. (Plano and Badiie, 2010:275-304).

### **4.3 Research methodology**

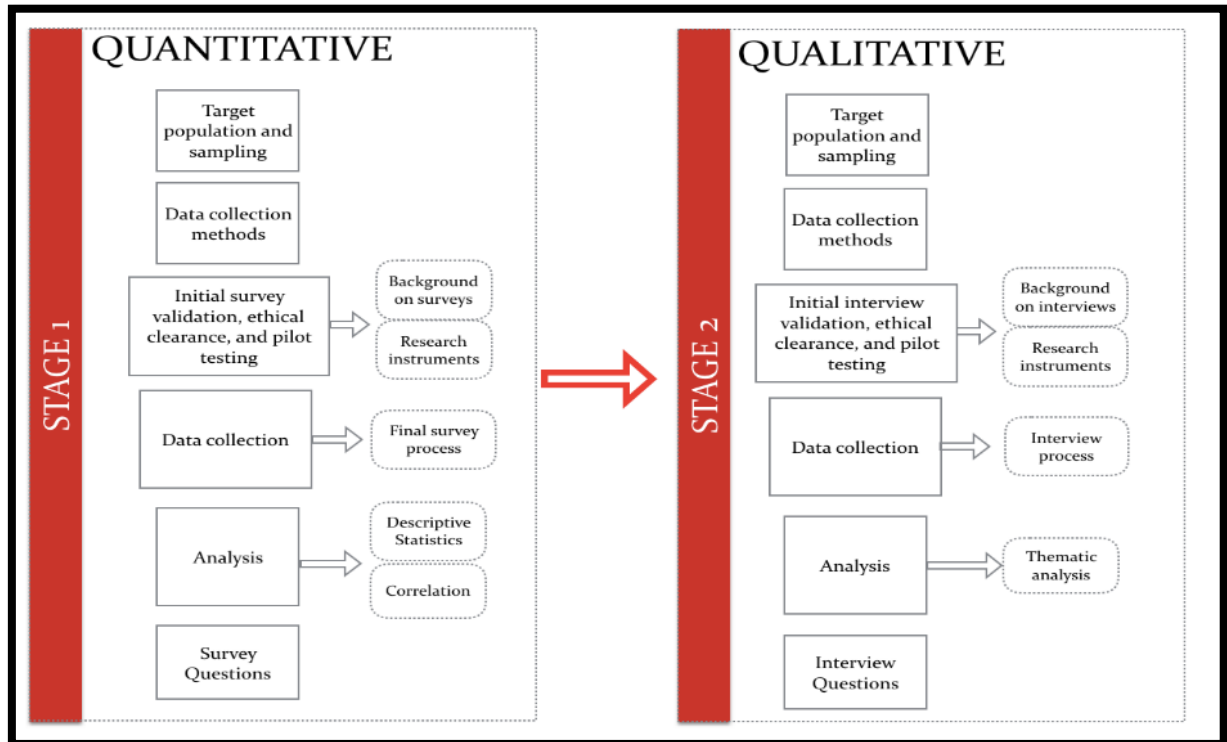
A combination of qualitative and quantitative research methods was used by the researcher. On the other hand, participants received an open-ended questionnaire in order to make sure that the data collected could be analysed in a manner that yields useful and reliable results. (Cooper and Schindler, 2011:151). The questionnaire had three sections; Section A – Biography (eligibility of respondents), Section B - Likert Scale (Quantitative) and Section C – Open ended questions(Qualitative). While quantitative research is regarded as empirical and objective, qualitative research is frequently seen as subjective and subject to personal bias (Creswell, 2013:5). It is best to draw as large a sample as possible to ensure that the selected sample is representative of the entire population in order to ensure reliability of qualitative research; otherwise, the study would be skewed and non-objective.

Mills and Birks (2014:3) describe the methodologies to be used in this study and how such approaches would be employed to the best benefit. Sampling, data gathering, data processing, and reporting are all components of methodological framework. As per Mills and Birks (2014:3), every selection of study technique often heavily impacted by an intended goal of work including the sort of evidence which was utilised to conduct this study.

#### **4.3.1 Types of research methodologies**

Quantitative and qualitative research techniques are the two kinds of methodology identified in research literature. These two are quite different in many ways, yet they seem to complement one another in several study areas. The key discrepancies are shown in the graphic (Figure 4.1); these two have significant disparities.

**Quantitative and qualitative methodologies used to evaluate the conceptual framework**



**Figure 4.1: Conceptual framework is divided into the quantitative and qualitative (Oosthuizen, 2017:121)**

**Table 4.1: Qualitative vs Quantitative**

(Brannen, 2017:3-37)

Basis of comparison	Quantitative	Qualitative
Purpose of the research	<ul style="list-style-type: none"> <li>To explain and predict</li> <li>To confirm and validate</li> <li>To test theory</li> </ul>	<ul style="list-style-type: none"> <li>To describe and explain</li> <li>To explore and interpret</li> <li>To build theory</li> </ul>
Nature of the research	<ul style="list-style-type: none"> <li>Known variables</li> <li>Established guidelines</li> <li>Static design</li> <li>Context-free</li> <li>Detached view</li> </ul>	<ul style="list-style-type: none"> <li>Unknown variables</li> <li>Flexible guidelines</li> <li>Emergent design</li> <li>Context-bound</li> <li>Personal view</li> </ul>
Method of data collection	<ul style="list-style-type: none"> <li>Large representative sample</li> <li>Standardised instruments</li> </ul>	<ul style="list-style-type: none"> <li>Small informative sample</li> <li>Observations and interviews</li> </ul>
Analysis-type	Deductive analysis	Inductive analysis
Method of Communicating findings	<ul style="list-style-type: none"> <li>Numbers</li> <li>Statistics, aggregated data</li> <li>Formal voice, scientific style</li> </ul> Qualitative	

The researcher decided to use both methodologies to take use of each methodology's strengths in order to get the desired outcomes. Combining the two methodologies will only benefit the research, as this process is used to gather and analyse information in order to better understand the phenomena under investigation (Creswell, 2008:18). According to Mohajan (2018:23-48), quantitative research is a formal, impartial, and systematic process in which numerical data is collected and processed to provide significance about a subject. Investigating the subjective significance of individual experiences in light of the subject's environment and reality is the definition of qualitative research. To make use of this wealth of information, two methodologies (mixed methods) were used for the study.

#### **4.4 Target population**

Individuals who fulfil a specific standard for participation in a given case and which the investigator is interested in is referred to as the study's population (Cooper & Schindler, 2011:147). The research was carried within the Western Cape local government in South Africa, in the department in charge of implementing capital projects for service delivery while utilising project portfolio management system as an operating model. The study total population consists of 298 municipal senior managements, middle management, project managers, portfolio managers, and project management office (PMO) practitioners who have a direct involvement in the department's capital project delivery and are familiar with project portfolio management practise.

#### **4.5 Sampling method, frame and sample size**

According to Jowah (2015:99) sampling is the choosing of a group of individuals from a statistical population to estimate attributes of the entire population in statistics, quality assurance, and survey methods. Researchers make an effort to acquire samples that are typical of the population under consideration. Purposive sampling was used to choose individuals who matched the criteria for eligibility Cooper & Schindler (2011:151). The reason for the selection of a purposive sampling is that it will save the researcher time by directly obtaining rich information from the individuals that are aware of the study subject. Total population was 298 senior managers, middle managers, project managers, portfolio managers, and project management office (PMO) practitioners from municipal within capital projects environment. Given the size of the research population, the researcher should take a sample of the research population. In order to investigation this theory, the researcher used 151 employees from capital projects as a sample.

Furthermore, Arikunto (2010:183) states that if the whole population is much less than 100, it is best to take a sample of all of them; but, if the total population is greater than 100, the sample

can be collected between 10-15% or 20-25% or more.; this number was considered large enough to allow for generalisation.

#### **4.6 Data collection Instrument**

The structured questionnaire was distributed via email, unless otherwise requested by the respondents, and all respondents were given three weeks to adequately answer questions. At the end of the three-week cycle, all respondents who had not responded were contacted to determine when they could respond, taking into account the length of the study. To collect data for this study, both qualitative and quantitative methodologies were applied. A structured questionnaire (series of questions) generated from the study questions and objectives was developed. The questionnaire was divided into three sections: Section A - Biography (eligibility of respondents), Section B - Likert Scale (respondents' experience with project portfolio management system), and Section C - Open ended questions (more of qualitative).

**Section A was a biography**, which was used to learn more about the respondents and to qualify them to participate in the survey. The few who did not satisfy the expected requirements were excluded, and only the questionnaires of the relevant respondents were included in the findings.

**Section B was used for Likert scale** –The Likert scale, which was used in Section B, was used to gauge respondents' perceptions, experiences, and comprehension of how well effective portfolio management performed in terms of achieving strategic goals and completing capital projects. On a scale of 1 to 5, with 1 being Strongly Agree, Agree is a 2, Neutral is a 3, Disagree is a 4, and Strongly Disagree is a 5. Any additional information was requested in a small section at the bottom of the scale that had room for five points.

**Section C was open ended** – Respondents were allowed to discuss any additional topics, personal experiences, or matters they thought were significant in the open-ended Section C. The survey participants had the chance to express their opinions on any topic related to effective portfolio management in achieving strategic objectives on the delivery of capital projects, issues, problems, and any other factors in this section.

The survey was believed to be useful since it allowed data to be collected in an anonymous and private manner and saved for later use. As a result, this data could be transformed into information and examined at any time if new study questions arose. The three-page questionnaire allowed for more involvement and enabled people to voice their opinions on the topic without fear of being judged. Using a structured questionnaire enabled for a larger population to be targeted. Following creation, the questionnaire was pre-run and rebuilt with

the help of a statistician before being forwarded for ethical approval. Following that, it was utilised to gather information from the respondents.

**Table 4.2: Potential advantages and disadvantages of Questionnaire**

(Shatri, 2020:420-428.)

<b>Advantages</b>	<b>Disadvantages</b>
<p><b>Global reach.</b> With the increase in Internet users, the ability to survey more people, increases. Although Internet penetration is the lowest in less-developed countries and greatest in industrialised ones, there is still an increase in technological advances in less-developed countries that will make it possible to reach more people in the future.</p>	<p><b>Nonresponse bias error.</b> These errors occur when people are unwilling or unable to give a response and the response rates are low. Some researchers have found that pen-to-paper surveys have a better response rate than the online surveys (Sax et al., 2003:42).</p>
<p><b>Cost.</b> One of the greatest advantages of Web surveys is that is a low -cost option for data collection (Carini et al., 2003:22).</p>	<p><b>Sampling error.</b> No matter how large the sample size, it cannot be said that the sample is a true representation of all the target population. Some members of the population might not have access to participate in the online survey (Dillman and Bowker, 2001:101).</p>
<p><b>Time.</b> Online surveys can be a time efficient manner to collecting data (Gunn, 2002:42) stated that the speed and reach created by using the Internet, allows for real-time access to geographically diverse respondents groups and information servers. When responses are recorded, the information is immediately available for analysis.</p>	<p><b>Measurement error.</b> This error can be from inaccurate responses. Some researchers suggest that participants could have different attitudes to online surveys than to pencil and paper surveys (Sax et al., 2003). A survey can also look different on different screens or operation systems.</p>
<p><b>Error.</b> According to Heer, and Bostock, (2010:203-212) web-based surveys may also reduce errors that result from coding; there is less likely the chance of human error.</p>	<p><b>Ethical considerations.</b> By sending mass emails, some people might feel their privacy has been invaded. This could happen as a result of misusing technology</p>
<p><b>Flexibility.</b> Some researchers have suggested that online surveys have the advantage of being flexible (Evans and Mathur, 2005:14) Questionnaires can be offered to different people or groups and web surveys can also be more refined in appearance (drop-down boxes, pop-up instructions, check boxes, etc.) than paper surveys (Umbach, 2004:18). These design advantages could increase the respondent's motivation to complete the survey (Umbach, 2004:18).</p>	<p><b>Coverage error.</b> This is a result of a mismatch between the target population and the frame population; representativeness can be threatened when the frame population does not cover the target population. An example of this would be if a researcher targets undergraduates in their institution, but the frame population may only reach the undergraduates who have accurate email addresses.</p>
<p><b>Social.</b> Students are more likely to answer socially threatening questions when responding to an online survey (Pealer et al., 2001). It reaches groups that are normally difficult to identify, such as gay, bisexual, lesbian, and transgender people.</p>	<p><b>Technical.</b> This is dependent on the researcher's expertise required to develop a functional online survey. Web development tools are becoming more user-friendly, but the researcher still needs to be familiar with the Internet protocols (Umbach, 2004:19; Evans and Mathur, 2005:65).</p>
<p><b>Data analysis.</b> Online surveying can effectively collect data of a large number of responses. When the questionnaires are submitted, the researcher has instantaneously data stored in a base (Wilson and Laskey, 2003:29)</p>	<p><b>Impersonal.</b> The online survey usually has no human contact and can limit the ability of a skilled interviewer to do in depth investigation</p>
<p><b>Follow'up.</b> The low costs of online surveys make it easy or companies or researchers to send out emails of follow up reminders to increase the survey response.</p>	



<b>Control order.</b> Online surveys can control the order of questions that is intended by the study designer, for example it can prohibit the respondent from looking at future questions, thus reducing survey bias (Evans and Mathur, 2005:65).	
---	--

#### 4.7 Creating the research instrument

Using reliable and accurate measuring equipment is crucial if you want to obtain data that is accurate, valuable, and usable. Whether or not the objectives we set out to measure were attained is a question of validity. The majority of the questions in this study were graded using the Likert scale. This allowed for the provision of a numerical response. On the Likert scale, the two most frequent questions were: (1) how frequently participants used a specific PPM practice, and (2) how they perceived the practice's potential contribution to portfolio management. Software that is already included in Survey Monkey assisted with both the questionnaire design and data collection procedures. Some of the question formats included ranking, single text box, matrix/rating scale, multiple choice, and a matrix of dropdown menus. Respondents had to respond to every question in the survey to complete it. To avoid errors and inconvenience, respondents only needed to click on the right response.

#### 4.8 Likert scale on a background

Rensis Likert came up with a way to measure certain feelings during a survey in 1932. People and groups have used and developed the Likert scale since invention. It has been used to measure things like traits or attributes of individuals or groups (Murray, 2013:42). They must be used correctly, according to Carifio and Perla (2008:40), and this has been a point of contention for more than 50 years. There is a great deal of misunderstanding among teachers, students, professionals, and researchers. The debate begins with whether to use parametric or non-parametric analysis and how to conduct it. According to Jamieson (2004:22), Gardner and Martin (2007:14), and others, the Likert data is ordinal or rank order, and thus only non-parametric tests will be valid.

A study by Norman, (2010:71) shows that parametric tests like Pearson analysis and regression analysis are used without getting the "wrong conclusion," as Jamieson (2004:45) put it in his report. Murray conducted a study in 2013 to see if the types of analyses performed on Likert scale data affected the conclusions drawn from the results. He discovered that parametric and non-parametric tests (such as Pearson and Spearman) had no effect on the conclusions drawn from the Likert scale results. If people do not realise the distinction between Likert scales and answer formats, they might be confused. They say that researchers should look at the answers to the Likert questions item by item, instead of looking at them as a group

of items that measure a certain thing. Carifio and Perla (2007:106-116) argue that using the summed scales for parametric tests is acceptable. Pell (2005:40) concurs, as long as the hypotheses are clear as well as the data is of sufficient size.

Due to the Likert scale concern and response in this study, there is currently debate on how many points the scale awards. Following considerable thought, the researcher opted to eliminate the scale's midpoint point, as proposed in the initial survey validation. A rating scale's purpose is to determine how firmly the person being interviewed feels about a particular subject and which way he is leaning. The greater the number of points on the scale, the more sensitive it is to changes (Brayda and Boyce, 2014:318-334). A neutral point on Likert's original scale might not be suitable for market researchers, but that does not mean they should stay in the middle of a scale. Garland (year) notes that with that rationale, a mid-point is better not to include, as long as both the validity and reliability of the test are not affected (Joshi, Kale, Chandel, and Pal, 2015:396).

It was hard to choose between a four- or five-point scale when it came to this thesis, so the researcher had to use an objective ranking method (order of importance), which were: First, determine what factors influence the organisation's PPM; and determine the impact of these factors on the organisation's PPM. It was a trade-off between the two extremes of people's opinions, with an increase in how much they cared about the outcome. This thesis is first trying to understand the factors make PPM successful, and how much these factors make PPM successful. In this case, it is preferable to avoid having a neutral/middle point.

#### **4.9 Considerations for survey length**

This study's length is significant. This study needed to achieve the correct balance between measurement reliability and precision and survey length so that people would be willing to participate. It was chosen to reduce the questionnaire (Section A, Section B had 30 questions and Section C had 9 open-ended questions) in order to make it easier for individuals to complete.

#### **4.10 Data collection**

A structured questionnaire with both closed-ended and open-ended items were used to collect data. Prior to the main survey, a pilot study was performed in which the questionnaire was rebuilt based on feedback from those who participated in the pre-survey. Before being delivered to the sample population, the study instrument (questionnaire) was forwarded to a statistician for review, which assisted in obtaining a 100% reliability as well as explaining any

portions of such questions that the potential respondents may not have understood. The most prevalent data gathering tool used in business research, according to Schoenherr, Ellram, and Tate (2015:288-300) is a questionnaire. Data collection involves a necessity that is in compliance with ethical guidelines and storing information practices, and it implies that the unique information is gathered, safeguarded, retrieved, utilised, or destroyed during study duration and used for final presentations and research conclusions (Schoenherr, Ellram, and Tate, 2015:288-300).

#### **4.11 Data analysis**

The most important aspect of any research is data analysis. Data analysis is the summarization of acquired data. It entails interpreting data acquired using analytical and logical reasoning in order to find patterns, connections, or trends (Drachler and Greller, 2016:89-98). Thematic analysis was adopted in this study. The process of categorising verbal or behavioural data in order to classify, enumerate, and tabulate the data is known as thematic analysis (Botma et al., 2010:83-130). The questionnaires were assembled, cleaned, edited, and coded before being loaded into a Microsoft Excel software from which drawings were created. The graphics (graphs, charts, frequency polygons, and tables) assisted in the comparison and explanation of the variables. All of the data (questions) were coded and entered into the computer for analysis. The information gathered from the questionnaires was evaluated using the Microsoft Excel programme. After calculating the score, the researcher divided it into a scale for each factor and chose the factor with the highest percentage as the dominating factor.

The method of analysing and understanding data is mostly based on the theoretical concepts, according to Tolley, Ulin, Mack, Robinson, and Succop (2016:65). The theory is a useful tool for collecting and categorising the ideas under investigation by analysing patterns, relationships, saturation, and trends in order to make relevant findings in response to the research question. In terms of participating in theme analysis, Braun and Clarke (2021:328-352) believe that thematic analysis is a versatile data analysis approach that can accommodate researchers with a variety of methodological backgrounds.

Survey Monkey internet website was used to collect data. The fact that these instruments are accessible to help the research is the primary argument for employing them for data analysis. This also assisted with the creation of required bar graphs, histograms, pie charts, and other diagrammatic representations. The relationships between variables was used to understand and analyse the survey results. (Botma et al., 2010:83-130).

#### **4.12 Data validity and reliability**

Research quality was assessed using reliability and validity. They show the accuracy of a procedure, methodology, or test. The main goal of establishing reliability and validity in mixed method research is to make sure that the data are reliable and repeatable and that the conclusions are accurate (Bryman, 2012:209). The data collection instrument in this study assured the validity and reliability of the research since collecting data using structured questionnaire. To determine the reliability of the questionnaire, the researcher used the SPSS programme to determine whether or not the questionnaire is reliable. According to Yilmaz (2013:311-325), dependability is defined as a test that produces comparable results everywhere under identical conditions, as well as assessments that are consistent. The capacity of a design instrument to achieve and measure what is anticipated to be accomplished while measuring is referred to as validity (Brynard and Hanekom, 2006:47).

The researcher conducted a pilot study to identify areas that might adversely affect data collection and analysis in order to assure the study's reliability and sustainability. The researcher was able to alter the questionnaires based on the results of the pilot study. As a result, this influenced the design of questionnaires to get the most appropriate responses. After gathering and analysing data, the researcher critically examined the results to look for any flaws or bias. At this point of the study, the researcher also benefitted from substantial insights and comments from the supervisor. The necessity to validate the research instrument in relation to the study's specified goals was important at this stage.

The data obtained was edited, cleaned, and collected using the survey monkey tool and Microsoft Excel program, through which the graphics were created to aid in the understanding of the connection between the variables. In order to define and assure correctness, consistency, and fitness, the research employed the services of a CPUT statistical department in all procedures throughout the investigation. Under the direction of a statistician from Cape Peninsula University Technology, various methodologies were used, including data type validation, cross-referencing verification, and the structural process assessment technique.

#### **4.13 Ethical consideration**

Research ethics is of utmost importance in daily studies and allows academics to protect the integrity of their subjects and reveal studied data (Akaranga and Makau, 2016:1-19). Throughout the research process, the researcher respected people's differences and made every effort to maintain their dignity and privacy. No one was coerced into taking part in the

research against their own will; rather, each participant was given full information about the study and its objectives. Following the survey, the researcher made the necessary improvements to the ethical standards, and no objections were also raised. The researcher was granted permission to conduct the research at the selected municipal departments. The participants were ensured of their privacy and confidentiality by not disclosing their participation to one another and the use of pseudonyms during the collection and analysis of empirical evidence. A consent letter was provided and signed for volunteering participation, and they were allowed to withdraw from the study should they feel uncomfortable. Additionally, the participants were advised not to answer any questions with which they did not feel comfortable. Proof of ethical clearance was provided in form of a letter from the Cape Peninsula University of Technology's (CPUT) Higher Degree Committee (HDC).

#### **4.14 Chapter Summary**

This chapter outlined and explained the research design and methodology, which aimed to determine the effectiveness of Project Portfolio Management methodology and processes in accomplishing municipal integrated development plans (IDPs), also known as strategic objectives. The design and procedures used during these scientific studies have been shown to have an impact on the validity of the results. As a result, the investigation's pathway (map) was given a lot of thought. The path plan, according to Jowah (2015:45), answers the question, "What is to be done?" As a response, a list of the survey's actions was created. Research methodology develops from the research design and sought to answer the question, how will this be done? To collect data for this study, both qualitative and quantitative methodologies were applied (mixed method). A structured questionnaire (series of questions) generated from the study questions and objectives was developed. The questionnaire was divided into three sections: Section A - Biography (eligibility of respondents), Section B - Likert Scale (respondents' experience with project portfolio management system), and Section C - Open ended questions (more of qualitative). In Order to ensure that the findings were valid and trustworthy, and precautions were taken throughout the design and methodology's activities.

Purposive sampling was used to choose individuals who matched the criteria for eligibility Cooper and Schindler (2011:151). The reason for the selection of a purposive sampling is that it will save the researcher time by directly obtaining rich information from the individuals that are aware of the study subject. Sample size was 298 senior managers, middle managers, project managers, portfolio managers, and project management office (PMO) practitioners from municipal within capital projects environment. Given the size of the research population, the researcher should take a sample of the research population. In order to investigation this theory, the researcher used 151 employees from capital projects as a sample.

Furthermore, Arikunto (2010:183) states that if the whole population is much less than 100, it is best to take a sample of all of them; but, if the total population is greater than 100, the sample can be collected between 10-15% or 20-25% or more.; this number was considered large enough to allow for generalisation.

## **CHAPTER FIVE**

### **DATA REPORTING, ANALYSIS AND INTERPRETATION OF THE FINDINGS**

#### **5.1 Introduction**

The findings of the fieldwork study are presented and interpreted in this chapter. To collect data, a structured questionnaire containing closed (quantitative) as well as open-ended (qualitative) questions were used. There is a well-established link between project portfolio management and capital project delivery, which commonly results in organisational effectiveness. The questionnaire was distributed to municipal project portfolio management workers in the Western Cape.

The major objective of this study was to investigate the important success criteria for effective project portfolio management of capital projects for a municipality in the Western Cape. The questionnaire was divided into three sections: Section A- Biography, Section B - Likert scale, and Section C - Open- ended questions. In each part, there were multiple questions requesting specific information. Section A was primarily biographical, Section B applied the Likert scale to measure variables such as perceptions, opinions, expectations, and experiences, allowing respondents to express their thoughts on the impact of effective portfolio management in meeting strategic objectives on capital projects delivery and identifying critical success factors. The final segment (Section C) consisted of open-ended questions to which respondents were expected to respond.

The gathered data was compiled and evaluated using a Survey Monkey tool and an Excel spreadsheet, which were used to build graphs, tables, bar charts, and histograms. These visual charts and tables are used to show the findings and to demonstrate the link between the variables in the study. The graphics fundamentally express the relationships between the variables as asked by the study instrument - the questionnaire. After cleaning and editing, it was determined that 151 surveys were correctly completed. Purposive sampling was employed to gather data after respondents were explicitly informed that their participation was voluntary. The participant could withdraw at any time, and ethical criteria was followed. Participants' rights in accordance with human dignity, confidentiality or anonymity, and the right to knowledge were all respected.

#### **5.2 SECTION A: BIOGRAPHICAL INFORMATION**

Data reporting follows a precise pattern in which a question is posed with a brief explanation of the question, followed by a response, and supported by diagrams and/or tables. The biographical section questions were designed to qualify respondents to participate because there was a specific research target group.

### Question 1: What is your gender?

This question was posed to find out the gender of each participant in the survey so as to show that the study was not gender-specific. The survey was completed by 151 people, resulting in a total of 100%, and their responses are displayed as percentages in Figure 5.1 illustrates the gender specification of the respondents who participated.

#### Gender specification of the Respondent

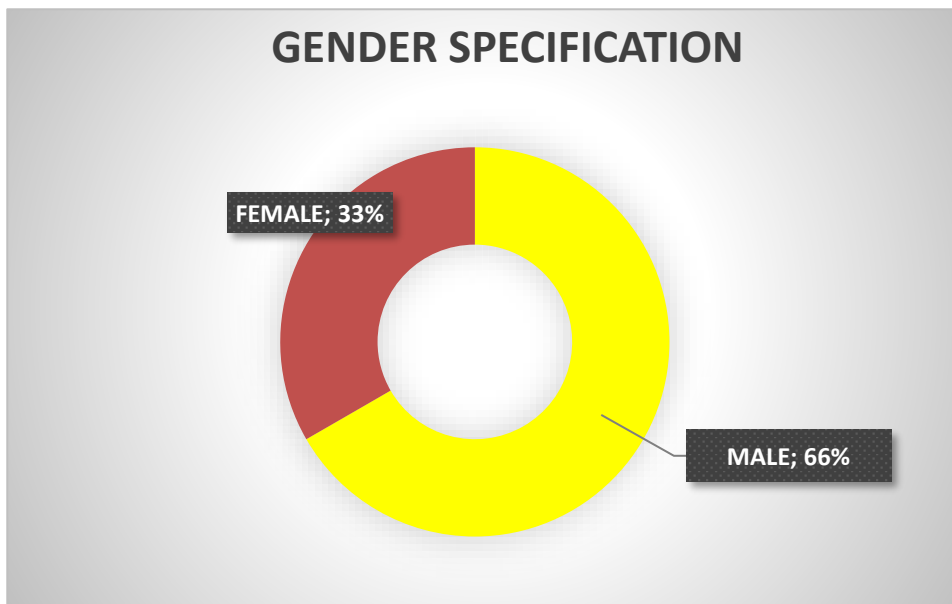


Figure 5.1: Gender specification (author's own construction)

**Response and interpretation:** The aim of this question was to determine the gender of those who participated in the survey. Figure 5.1 shows the gender of the respondents from the targeted areas. The results of the study appear to indicate a gender gap. A total of 151 participants, 66% of whom were men and 34% of whom were women, made up the total sample size. This imbalance may be attributed to the demographic trend of the targeted area from which the sample was drawn, which is mainly dominated by males who were willing to participate in the study. The results point out that there is inequality between gender and indicates that there are more males than females in the project management field.



### Question 2: Please indicate your age range?

This question was essentially to understand the average age of the employees involved in the delivery of projects. Whilst this may not have much importance in the ability of project portfolio management processes, it was accepted that there may be a correlation between the age and the presumed level of knowledge of project portfolio management. The survey was completed by 151 people, resulting in a total of 100%, and their responses are displayed as percentages below. Figure 5.2 illustrates the age group of respondents who participated in this study.

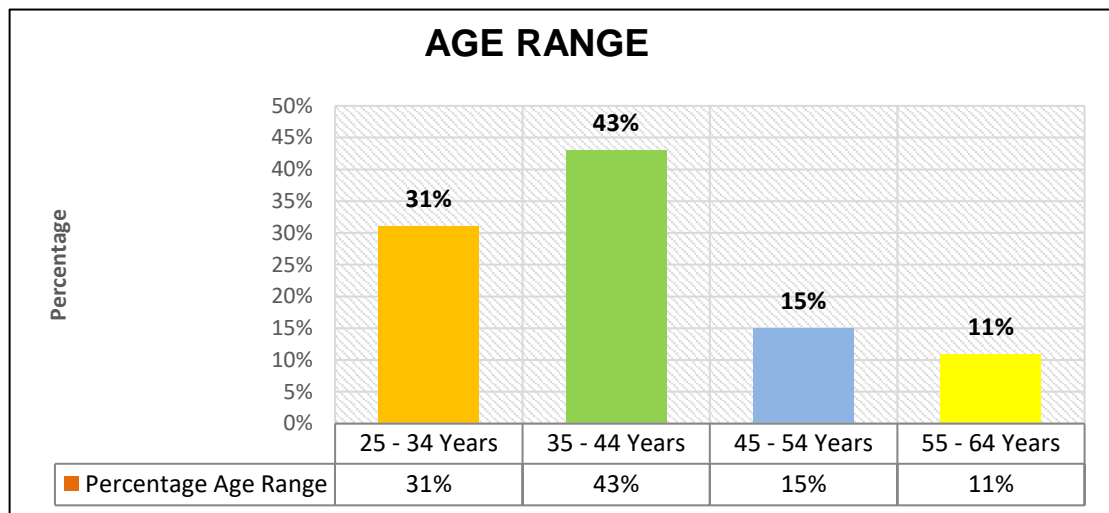


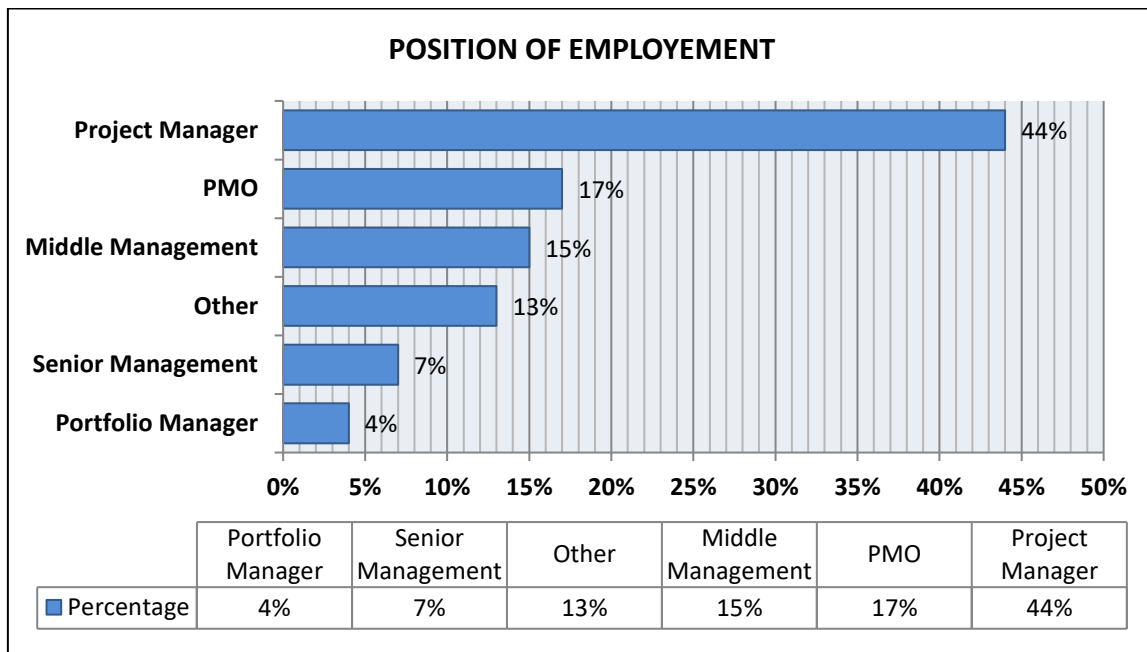
Figure 5.2: Age Range of the respondents (author's own construction)

**Response and interpretation:** According to Figure 5.2, 74% of respondents were between the ages of 25 and 44. This is distributed between 43% of respondents aged 35 to 44 years old and 31% of respondents aged 25 to 34 years. 15% of those surveyed were between the ages of 45 and 54, while 11% were between the ages of 55 and 64. The chart indicates that most participants in this study were 25-44 years old, and there were few participants who were 55-64 years old. The findings clearly display that in this organisation young and middle-aged employees were involved in the project programme portfolio management discipline. One could conclude that this organisation attracts young and middle-aged people.

### Question 3: Please indicate your position in the organisation

This question enabled the researcher to identify the level of employment of those involved in project portfolio management processes. The aim is to create a balanced response from participants so that the findings are not skewed or biased. It cannot be disputed that there is a correlation between position and knowledge. The survey was completed by 151 participants,

resulting in an overall response rate of 100%, and their responses are displayed as percentages in figure 5.3 below.

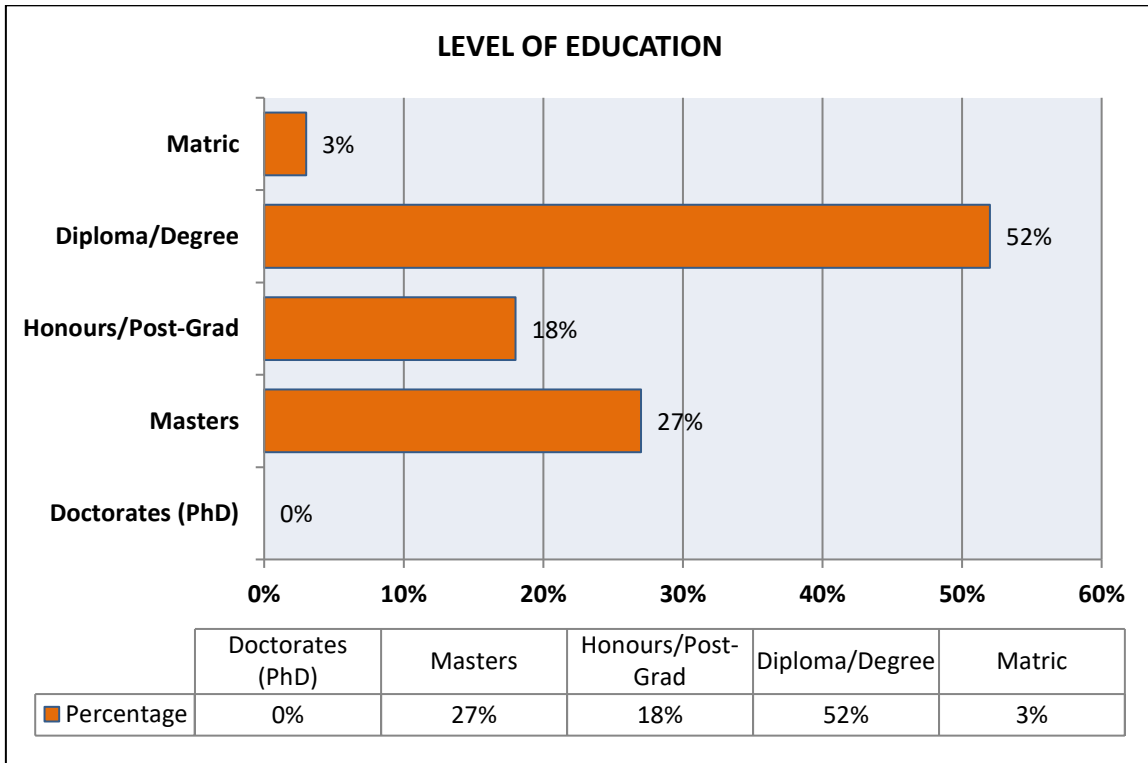


**Figure 5.3: Position of Employment (author’s own construction)**

**Response and interpretation:** The respondents were employees who are involved in the project portfolio management operating model, particularly in the targeted Western Cape municipality at the time the survey was conducted. As illustrated in Figure 5.3, 44% were Project Managers, 17% Project management officers, 15% Middle Management, 13% Other, 7% Senior Management (7%), and the lowest 4% Portfolio Managers, totaling 151 participants. These outcomes indicate that project managers are the most dominating position in the project portfolio management of capital projects according to this feedback. The responses also illustrate that portfolio managers are not fully established in the municipality. The role of the portfolio manager is not yet to be formalised within the structure of this organisation or is not yet understood.

**Question 4: Please indicate your level of education?**

In this question the research sought to ascertain the level of education of the respondents. The success of project portfolio management requires a certain level of education from portfolio and project managers and at times PM is required to be certified or affiliate to Project Management Institutes or Body of Knowledge. The survey was completed by 151 participants, resulting in an overall response rate of 100%, and their responses are displayed as percentages in figure 5.4 below.



**Figure Error! No text of specified style in document.4: Level of Education (author's own construction)**

**Response and interpretation:** According to Figure 5.4, the majority of respondents (97%) obtained a formal university qualification and only 3% had Matric. Diploma/Degree 52%, Honours/Post-Grad 18%, Masters 27%, PhD 0%. This response demonstrates that in this organisation project portfolio management employees are qualified for the positions they are occupying and have knowledge, skills, and managerial understanding to sustain and develop the projects. Semerádová and Mrázek, (2015:435) outlines that the influence of experience and education of project managers has link towards project success.

### Question 5: How long have you been involved in projects at this level?

The extent of time spent in project management space has much to do with the experience the respondent has in the portfolio management processes. Experience is not for sale. The number of years in an environment contributes towards your experience and knowledge and develops your skills. The number of years the respondents have in terms of managing and implementing projects plays a significant role in ensuring that projects are delivered in an effective and efficient manner. The survey was completed by 151 participants, resulting in an overall response rate of 100%, and their responses are displayed as percentages in figure 5.5 below.

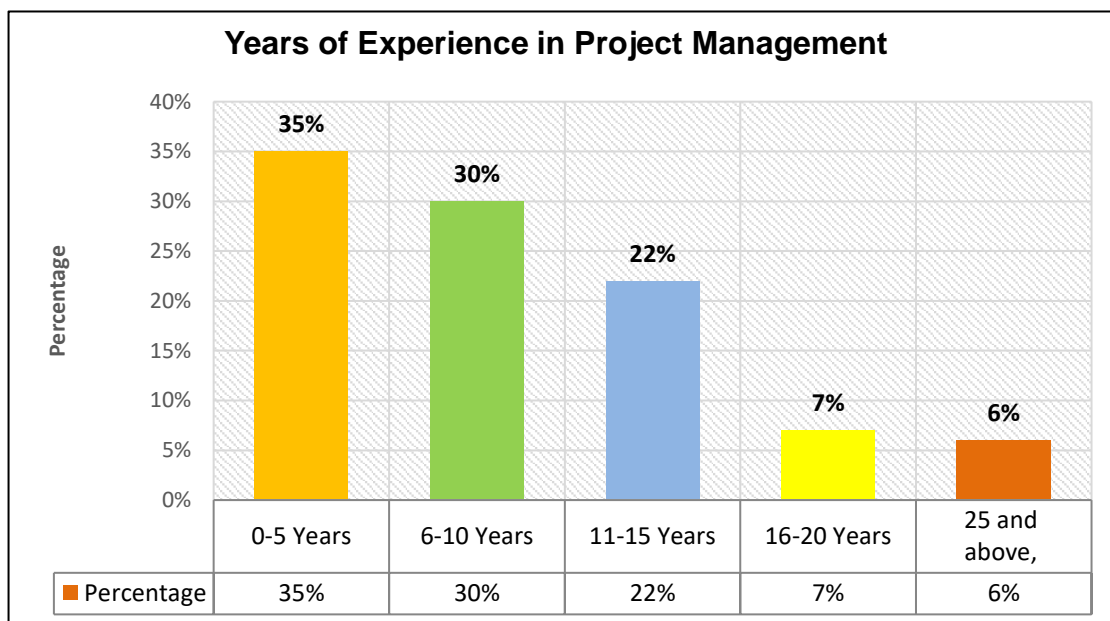
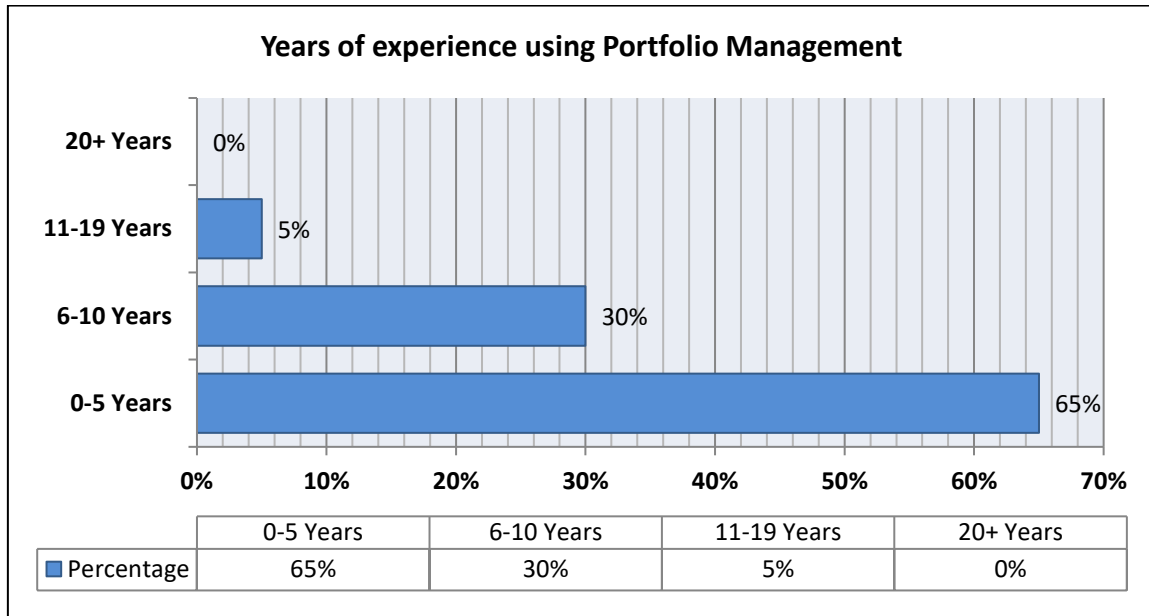


Figure 5.5: Years of Experience in Project Management (author's own construction)

**Response and interpretation:** As evident in Figure 5.5, majority of the respondents (35%) have been working in projects for less than 5 years; while 30% of the respondents have been working for the department between 6-10 years; 23% of the respondents have been working in projects for 11-15 years; 7% have been working for 16- 20 years and 6% of the respondents have been working for more than 25 years in the projects space. These numbers demonstrate an organisation that with a balanced bag of employees: 35% minimum experience, 52% middle or matured experience, 13 % high experience and chances are that this group of employees are towards their retirement age. Another critical factor is the number of years of experience in capital projects. Semerádová and Mrázek, (2015:435) supports the statement mentioned above that the influence of experience and education of project managers has link towards project success. The amount of time spent in the project management domain heavily influenced the respondent's expertise with portfolio management methods. Experience cannot be purchased.

**Question 6: How long have you been using portfolio management model level?**

The survey was completed by 151 participants, resulting in an overall response rate of 100%, and their responses are displayed as percentages in figure 5.6 below. The number of years the respondents exposed in terms of managing and implementing portfolio management mode plays a significant role in ensuring portfolio success instead of focusing on individual projects.



**Figure Error! No text of specified style in document.6: Years of Experience Using Portfolio Management Model (author’s own construction)**

Figure 5.6 illustrates that the majority (65%) of the respondents have only been working on portfolio management model for less than 5 years; while (30%) of the respondents have been exposed to portfolio management between 6-10 years. Only 5% of the respondents have been involved in portfolio management model and its implementation for 11-19 years. These numbers are aligned to the study’s literature review that showed that project portfolio management is still a new model in the Western Cape municipality. Literature alluded to the perception that amount of years spent in a given environment contributes to your experience and knowledge, as well as the development of your skills. The number of years the respondents have spent managing and implementing projects is important in ensuring that projects are delivered properly and efficiently (Meirelles, Tereso and Santos, 2019:101-111).

**Question 7: Does your organisation have an official project portfolio manager(s)?**

**Response and interpretation** The survey was completed by 151 participants, resulting in an overall response rate of 100%, and their responses are displayed as percentages in figure 5.7 below. The researcher sought to identify if the organisation has official portfolio managers as this position at times can be confused with the project managers or middle managers. Project Portfolio Management failure and success factors are on the process, and portfolio managers drive those processes controls.



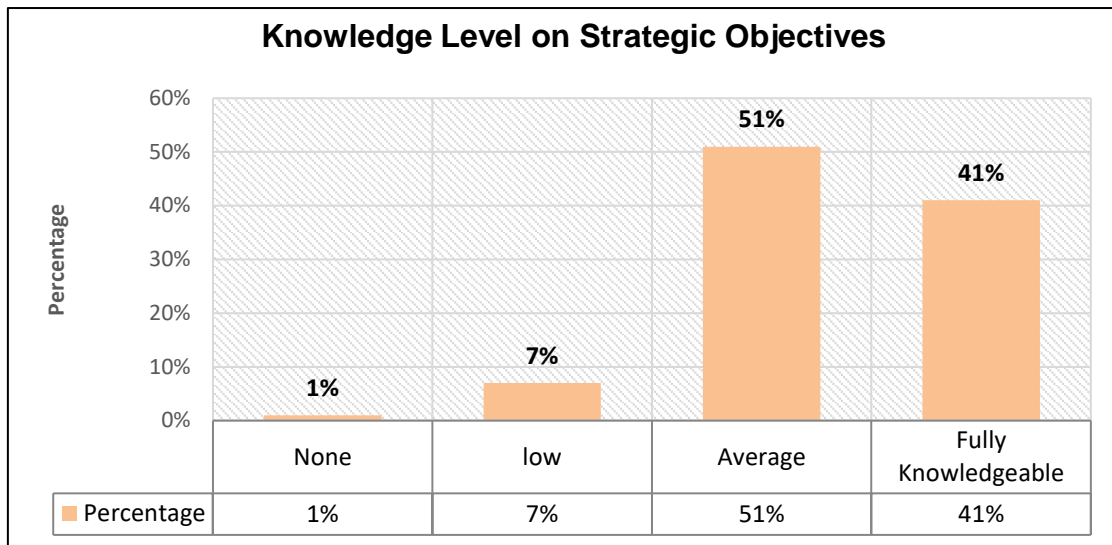
**Figure 5.7 Designated Portfolio Manager(s) (author's own construction)**

In Figure 5.7, the majority of respondents (90%) indicated that they had an official project portfolio manager while 10% indicated that they did not have official portfolio managers. This illustrates a maturing project portfolio management structure, and that this organisation is on the right path.

**Question 8: How is your understanding on organisation strategic objectives?**

**Response and interpretation:** The survey was completed by 151 participants, resulting in an overall response rate of 100%, and their responses are displayed as percentages in figure 5.6 below. The purpose of this question was to see whether the respondents were aware of the strategic objectives of the organisation. Knowing these goals would assist the team in knowing where they were in a project and what needed to be changed or completed. According to Voss, (2012:567–581) argues that the optimal use of scarce resources is achieved through portfolio management, which increases corporate value by coordinating projects with an

organisation's strategic objective. The response to the organisation's strategic objectives is reported in Figure 5.8.

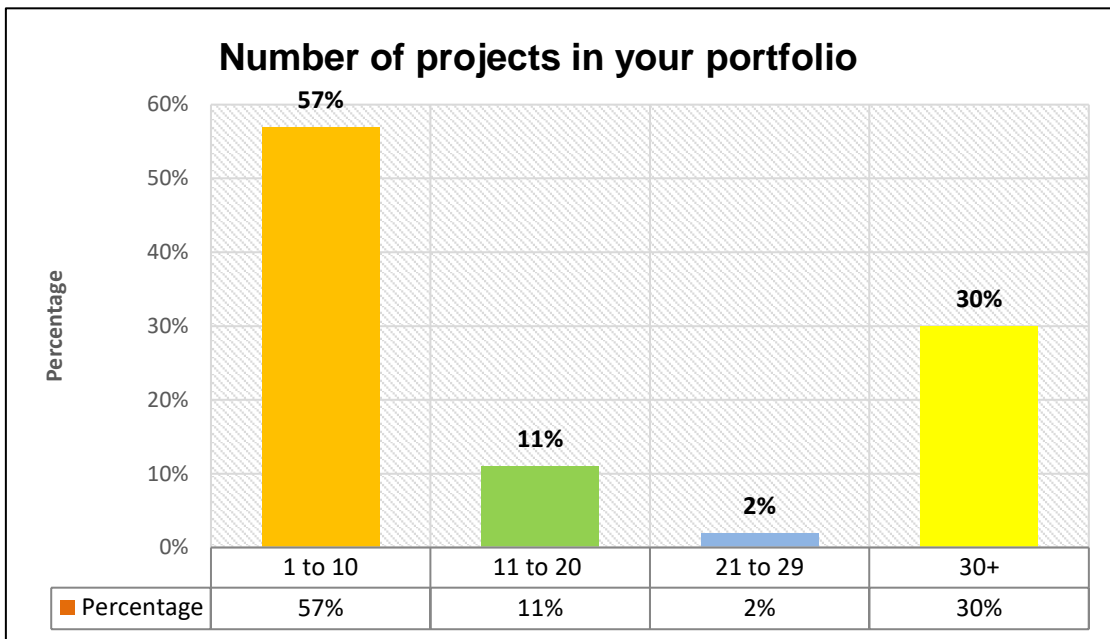


**Figure 5.8: Knowledge Level on Strategic Objectives**  
**Source: (author's own construction)**

Figure 5.8 illustrates that majority (51%) of the respondents understood organisation's strategic objectives, while only 41% of the respondents had full knowledge of organisational strategic goals. It is worrying that 8% of these experienced professionals with formal qualification and many years of experience into the project management space have a very low understanding of the corporate strategic goals. These numbers demonstrate that some respondents in this organisation are not doing enough to simplify strategic objectives and internally market them to employees. One of the reasons could be that the strategic objectives are driven from top to bottom, therefore internal stakeholders are not involved during the crafting of the strategic goals.

**Question 9: How many projects are in your portfolio currently?**

**Response and interpretation:** The question was included in the questionnaire to determine how many projects are within a portfolio to give an indication about the size of a portfolio. The size of portfolio is linked to the complexity of the portfolio and amount of budget at risk. Municipality core business is basic service delivery to the people of that particular area. Portfolio is linked to the strategic goals and executing the right projects is important to project portfolio management processes of balancing the portfolio. The findings are illustrated in Figure 5.9 below.



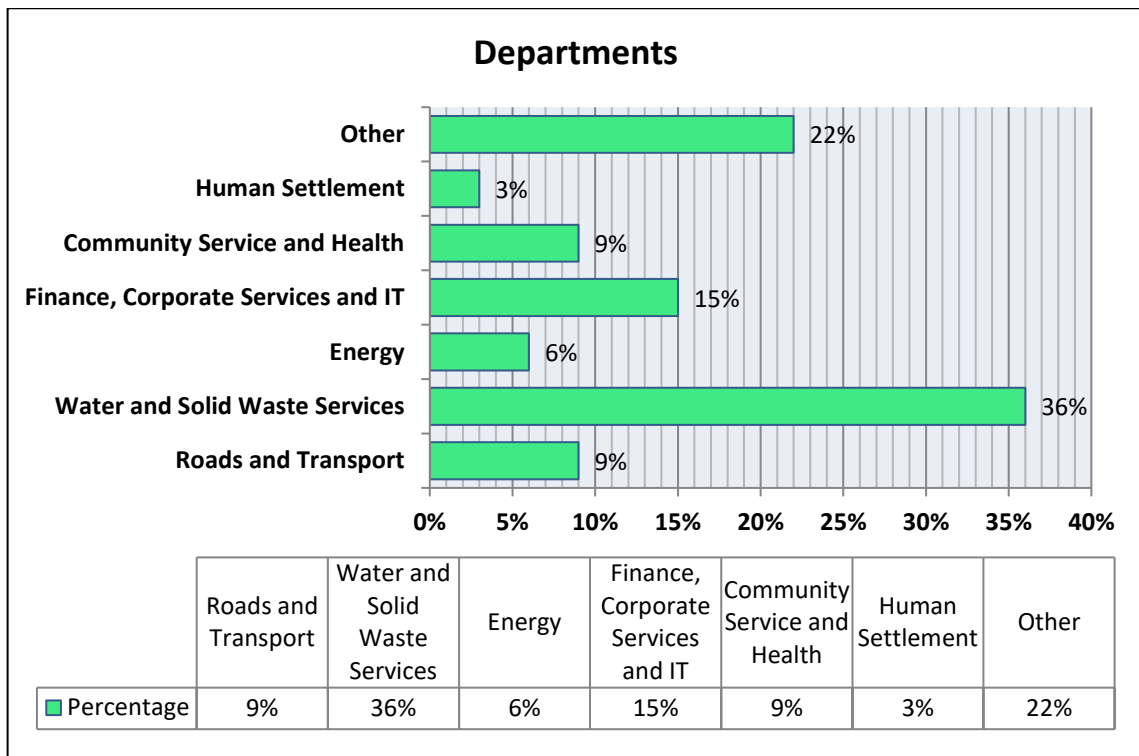
**Figure 5.9: Number projects within a Portfolio (author's own construction)**

In Figure 5.9, majority of the respondents (57%) have between 1-10 projects in their current portfolios, while 30% of the respondents have 30+ projects in the portfolio; 11% of respondents have between 11-20+ projects in their portfolio and only 2% of the respondents have between 21-29 projects in the portfolio. It is not clear why there is such a vast difference in the number of projects within a portfolio, but it is important to note also that the projects may not be of the same size / magnitude. Artto and Dietrich (2007:1–33) outlines the importance for balancing a portfolio and further states on the average therefore this is considered as balanced portfolio of projects.

**Question 10: In your organisation, which department do you work in?**

**Response and interpretation:** The question was included in the questionnaire to determine which departments respondents were working in and such questions attracted a mixture responses.



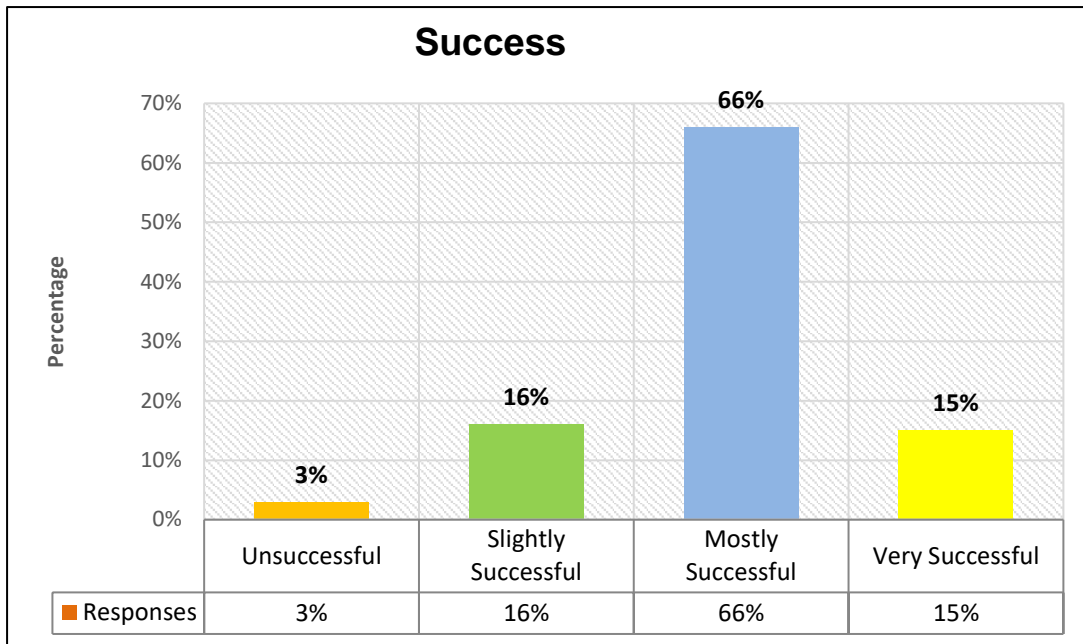


**Figure 5.10: Department in the organisation (author's own construction)**

The results obtained show that survey participation came from diverse departments, majority of respondents (**36%**) were from the Water and Solid Waste Services, **22%** other, **15%** Finance, Corporate Services and IT, **9%** Roads and Transport, **9%** Community Service and Health, **6%** Energy and **3%** Human Settlement. Community service delivery of any municipality depends on these departments; thus, these departments are responsible for the drive of capital projects, therefore the research has attracted the right respondents and a balanced mix.

**Question 11: How successful/effective is your organisation's project portfolio management?**

**Response and interpretation:** The aim was to measure how respondents perceive the success of their company project portfolio management. The success of project portfolio management model makes it easy to determine key success factors of the model, allows to identify the correct processes and identify gaps in the portfolio maturity model. The response from the participants is shown in the Figure 5.11.



**Figure 5.11: PPM Perceived Success (author's own construction)**

The results obtained show that survey participation came from diverse departments, diverse age groups with a vast experience in project portfolio management field. An overwhelming majority of respondents (**81%**) perceive portfolio management as mostly and very successful, while **16%** perceive it as slightly successful and only **3%** indicate it is unsuccessful. The findings are self-explanatory with an overwhelming majority indicating that project portfolio management has been successful in its implementation in this organisation. Heising (2012:582-595) outlines key factors for sustainable success and further demonstrate that a successful Project Portfolio Management should have operating portfolio processes that can be easily identified and matured portfolio model which is linked to meeting strategic company goals. Abubakar et al., (2018:63) concurs that successful portfolio of projects should simply translate to better community service delivery and high capital expenditure of municipality budget.

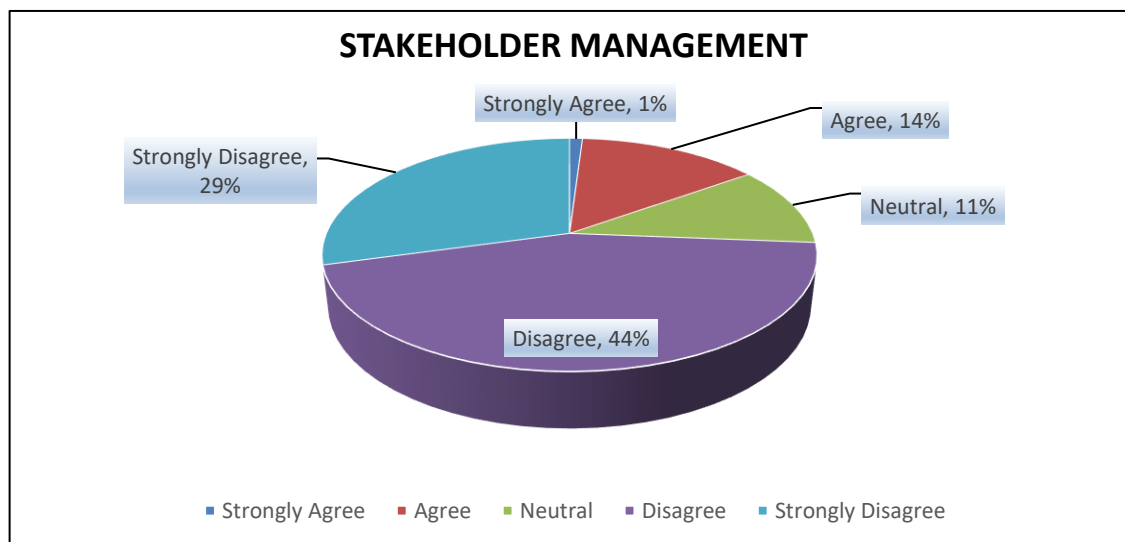
### **5.3 SECTION B: LIKERT SCALE**

The Likert scale is used in this section to measure the respondent's perceptions and opinions against particular statements arising from the research question, problem statement and research objectives. The Likert scale statements were rated at scale of 1-5, with 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree and 5 = strongly disagree. Respondents were asked to rank these statements on how they felt regarding their understanding of these statements. The very same method used in the Biographical section is applied here, where the statement appears as in the questionnaire supported by a response in an illustrative form. The following statements are repeated below.

**Statement 1: Stakeholder management activities are not part of our portfolio management process.**

**Response:** The purpose of this statement was to ascertain whether stakeholders are included in the portfolio management processes. The success of a portfolio management may also depend on the inclusivity and engagement of the internal and external stakeholders. Beringer, Jonas and Kock (2013:830-846) postulate that stakeholder is an integral part of an organisation’s strategic objective. It is the reason why it is important to assess if the existing project portfolio management practice includes stakeholder management. The responses are illustrated in Figure 5.12.

### Stakeholder Management



	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
PERCENTAGE	1%	14%	12%	44%	29%

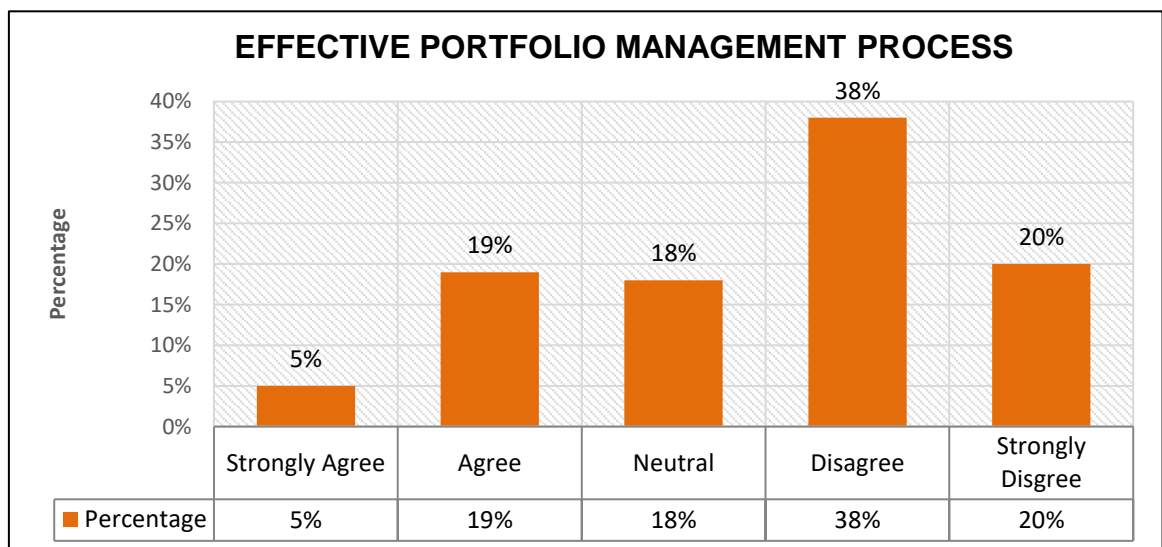
**Figure 5.12: Stakeholder Management (author’s own construction)**

The results in Figure 5.12 reveal that 73% disagree and strongly disagree (29% strongly disagree and 44% disagree) that stakeholder management activities are not part of portfolio management process, although 12% remain undecided in relation to that assertion. The lowest score of 15% disagrees (agree 14% and strongly agree 1%) that stakeholder management activities are not part of the project portfolio management process. This simply means that an

overwhelming majority maintain that stakeholder management activities form part of the PPM processes in their organisation.

**Statement 2: Effective portfolio management process does not need 100% projects into the system.**

**Response and Interpretation:** The aim of this statement was to ascertain whether effective portfolio management process needs 100% projects into the PPM system or not. Portfolio Management is still a new discipline in South Africa, therefore it becomes pivotal to ascertain what are the best practices in order to establish the effectiveness of this model. The aim is to establish the correlation between implementation of the processes and success of portfolio management. In the literature review it has been discovered that there is a link between portfolio management success, the balance of the portfolio and to selection of right projects into the portfolio Alexandrova (2018:96-105). Establishing correct processes plays a huge role in the success or failure of the portfolio of projects. The responses are illustrated in Figure 5.13.

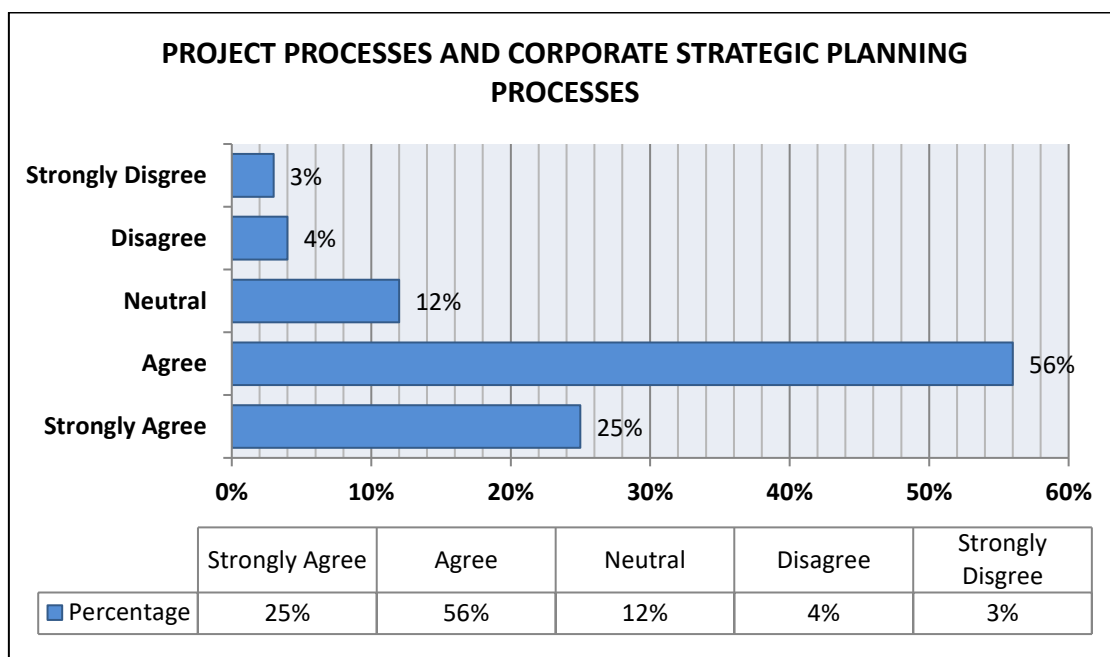


**Figure 5.13: Effective Portfolio Management Process (author’s own construction)**

According to Figure 5.13, 58% of the respondents (38% disagree and 20% strongly disagree) disagree with this statement. 18% of the respondents were neutral and 24% of the respondents (19% agree and 5% strongly agree) declaring they do not agree that effective portfolio management process does not need 100% projects into the system. The decisive majority seem to understand that all projects must be included in the PPM system in order to execute and deliver correct projects. In a portfolio management model, all projects must be aligned with the corporate strategic objective.

**Statement 3: Portfolio management processes interface to project processes and corporate strategic planning processes**

**Response and Interpretation:** The nature of projects portfolio management processes interface to project management processes and corporate strategic planning processes. These three aspects cannot be divorced from one another; they are equally important in the project execution environment. Portfolio Management cannot succeed if organisations do not have sound and good project management processes in place. Abubakar et al., (2018:63) illustrate that processes guide how projects should be delivered and must be linked to the corporate strategic planning process. Once all three are integrated or aligned the outcome will be visible in the success of the portfolio. The respondents expressed their views as shown in Figure 5.14.

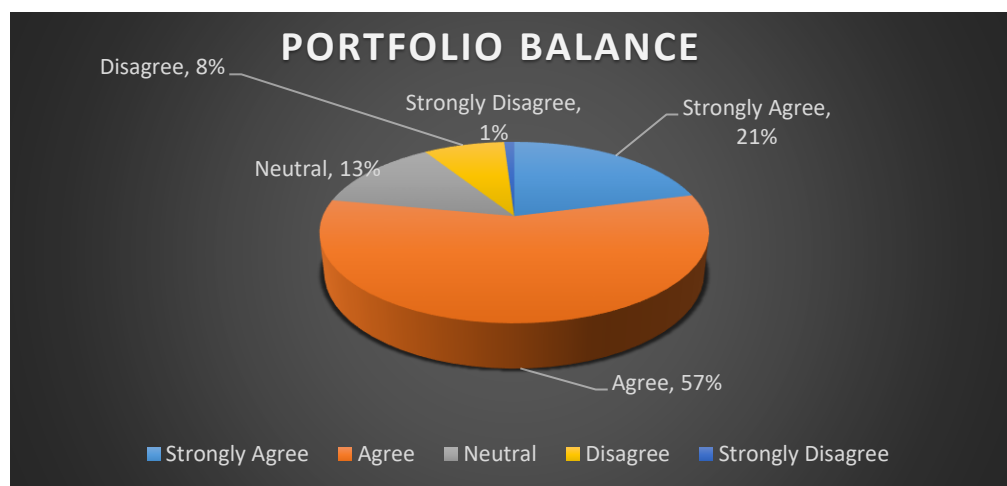


**Figure 5.14: Project processes and corporate strategic planning processes (author’s own construction)**

The results in Figure 5.14 indicate that 81% of the respondents (56% agree and 25% strongly agree) are in agreement with this statement. 12% of the respondents were neutral and 7% of the respondents (4% disagree and 3% strongly disagree) declaring they do agree that portfolio management processes interface to project management processes and corporate strategic planning processes. This provides a clear picture of the in-depth understanding of the three aspects mentioned above.

**Statement 4: Processes are in place to regularly review the portfolio to ensure optimal mix of projects.**

**Response and Interpretation:** The purpose of this statement was to ascertain whether their organisation has such processes in place and to gather whether employees working in the portfolio management space fully understand the purpose of these processes and establish the understanding of what the process seeks to achieve in relation to optimal mix of projects in the portfolio. Portfolio Management is about driving the entire portfolio towards success therefore when selecting projects in the portfolio you are required to strike a balance in selecting projects from high risk to low risk, high expenditure to low budget, and complex projects to easy projects. It is not about individual success of projects but more about portfolio to succeed, it is no use to only select and implement easy projects in the portfolio. This is important in the process of portfolio management; it is called optimal mix of projects. The responses are illustrated in Figure 5.15.



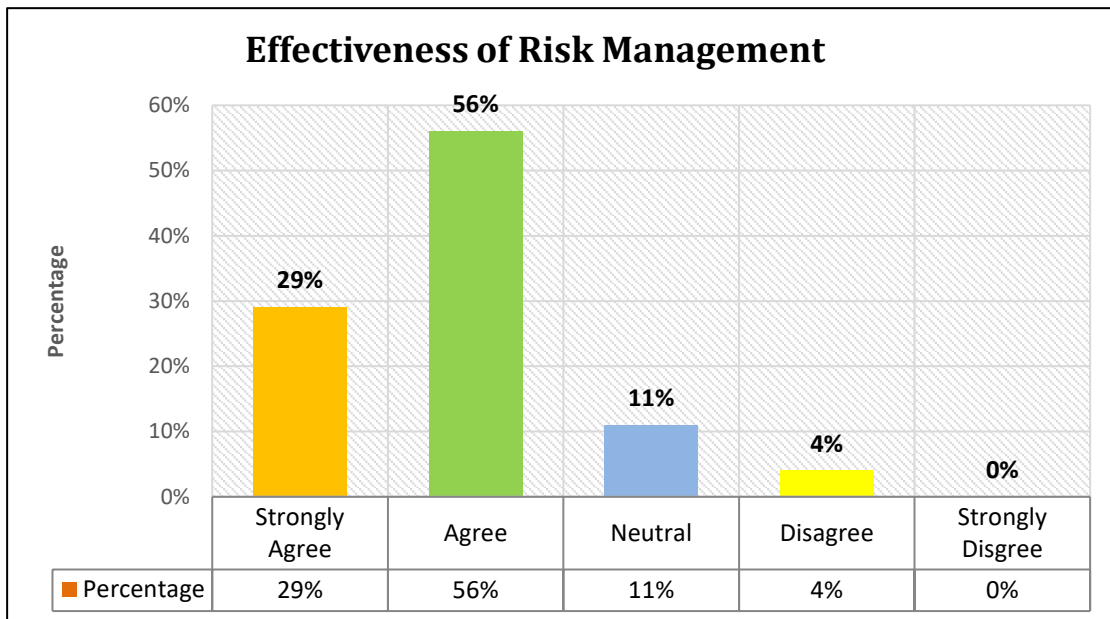
	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
PERCENTAGE	21%	57%	13%	8%	1%

**Figure 5.15: Maximising Portfolio optimal mix of projects (author's own construction)**

The results in Figure 5.15 reveal that 78% agree and strongly agree (57% agree and 21% strongly agree) that their organisation processes are in place to regularly review the portfolio to ensure optimal mix of projects, although 13% remain undecided in relation to that assertion. Lastly the lowest score of 9% (disagree 6% and strongly disagree 4%) disagree or strongly disagree that there are such processes in place to regularly review the portfolio to ensure optimal mix of projects. This is important in the process of portfolio management. The majority of respondents demonstrate a matured and effective project portfolio management process.

**Statement 5: We monitor portfolio to improve the effectiveness of our risk management process.**

**Response and Interpretation:** The purpose of this statement is to determine whether the monitoring of the portfolio is completed to improve the effectiveness of risk management process. Table 5.16 indicates the responses to this assertion.

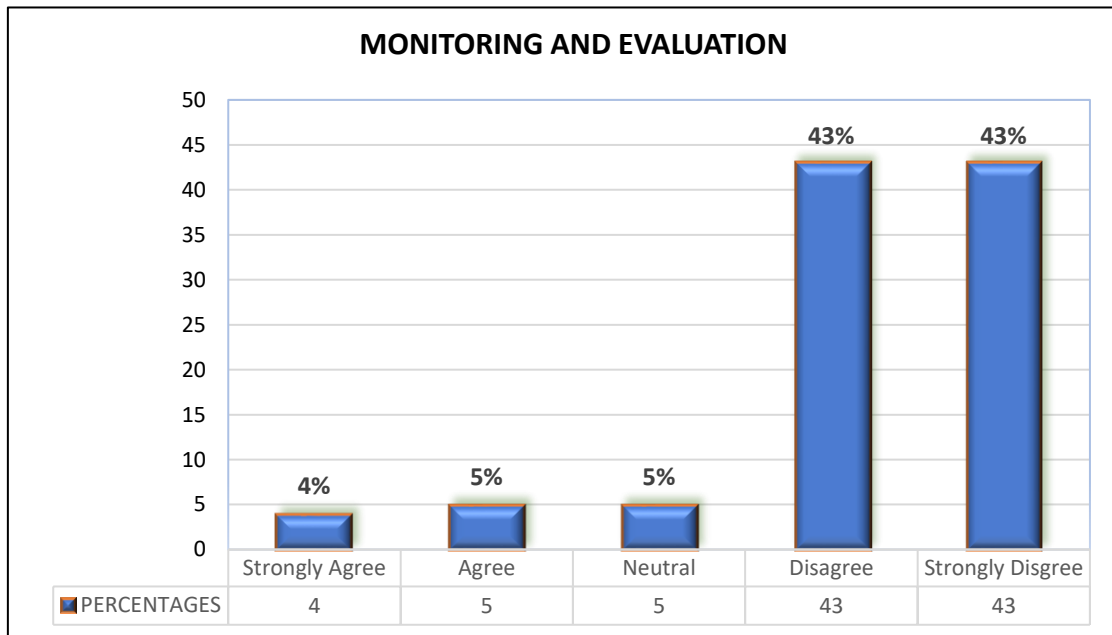


**Figure 5.16: Effectiveness of risk management (author’s own construction)**

Figure 5.16 illustrates that **85%** of the respondents agree and strongly agree (56% agree and 29% strongly agree) that they are monitoring portfolio to improve the effectiveness of the project risk management process. However, **11%** of the participants remained undecided, **(4%)** of the respondents disagreed with the statement that they monitor portfolio to improve the effectiveness of risk management process. In view of these results, it is obvious that a large number of the respondents agreed with the statement.

**Statement 6: There is no need for constant monitoring and evaluation to pre-empt and mitigate risks.**

**Response and Interpretation:** The purpose of this statement is to determine whether project managers or portfolio managers understand the need for constant monitoring and evaluation to pre-empt and mitigate risks. Table 5.17 indicates the responses to this assertion.



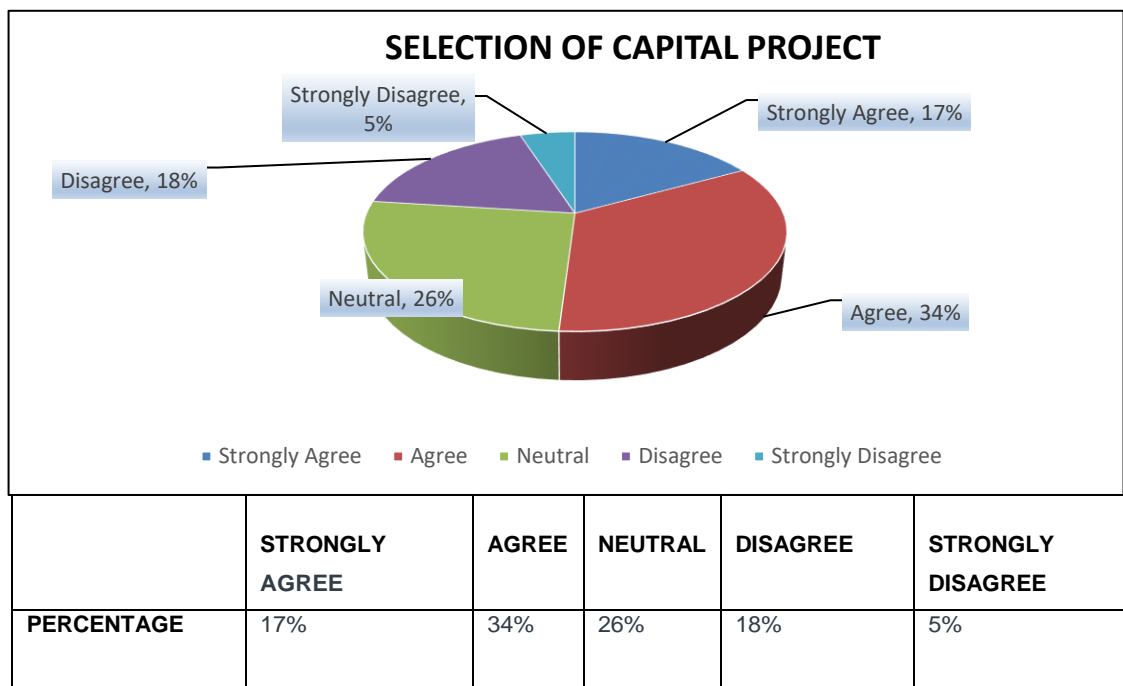
**Figure 5.17: Portfolio Monitoring and Evaluation (author's own construction)**

Only 9% of the respondents support the statement, and 5% remain neutral, which means they have not taken any decision about whether they agree or disagree with the statement. A total of 86% do not support the statement that there is no need for constant monitoring and evaluation to pre-empt and mitigate risks. Therefore, it can be concluded that the majority of respondents are of the opinion that continuous monitoring and evaluation is crucial to pre-empt and mitigate risk.



**Statement 7: Selection of capital project to be implemented is a top-down approach**

**Response and Interpretation:** The aim of this statement is to ascertain the decision making and consultation in terms of selecting projects into the portfolio. The purpose is to determine if the key drivers or people responsible for the delivery or implementation of project/portfolio are consulted in the process or executive management decide which projects to include. Alexandrova, (2018:96-105) alludes on principal component analysis of project portfolio management practices. This statement is vital in the effectiveness of the portfolio management processes and the study strives to identify these success factors. Table 5.18 indicates the responses to this assertion.

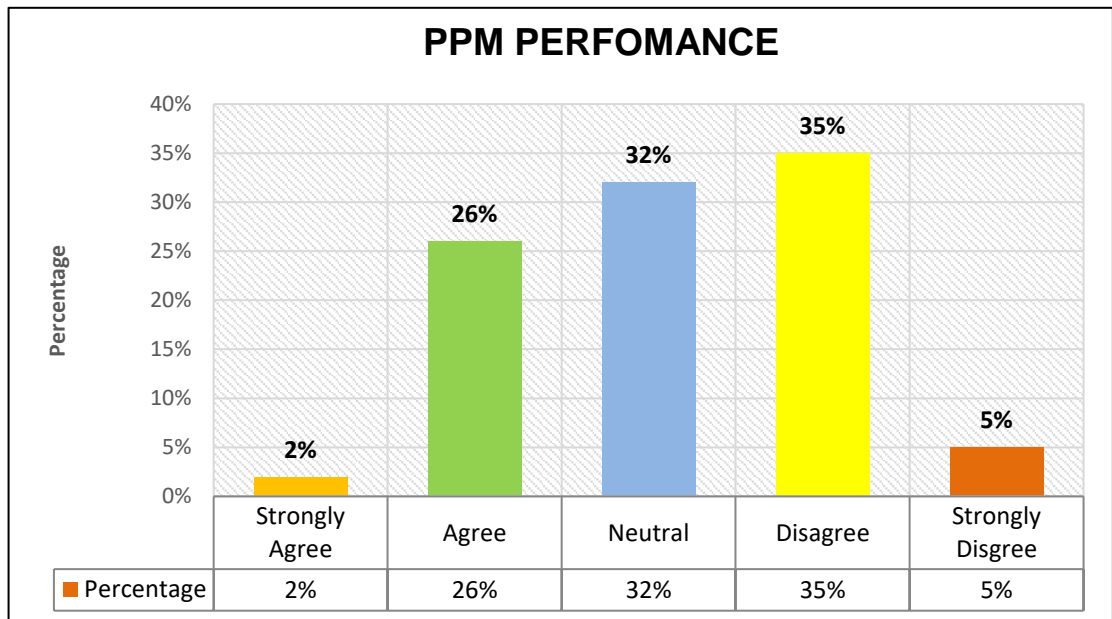


**Figure 5.18: Projects Selection (author’s own construction)**

Most respondents at 51%, when combined generally agreed (agree – 34%, and strongly agree – 17%) with the statement. 26% of respondents did not decide about the statement, while 23% (disagree 18% and strongly disagree 5%) show disagreement with the statement that selection of capital project to be implemented is a top-down approach. Conclusions can be drawn that selection of capital projects to be executed during a financial period is an inclusive decision and it is not a one-sided decision. It is a combination effort of the selection process.

**Statement 8: Project portfolio management has no high failure risks and is generally successful.**

**Response and Interpretation:** The aim of this statement was to ascertain how respondents or users of PPM perceive the performance of project portfolio management operating model and how they view the failure rate. The purpose is determining whether project portfolio management has no high failure risks and is it generally a successful model. The study strives to identify these success factors. Table 5.19 indicates the responses to this assertion.

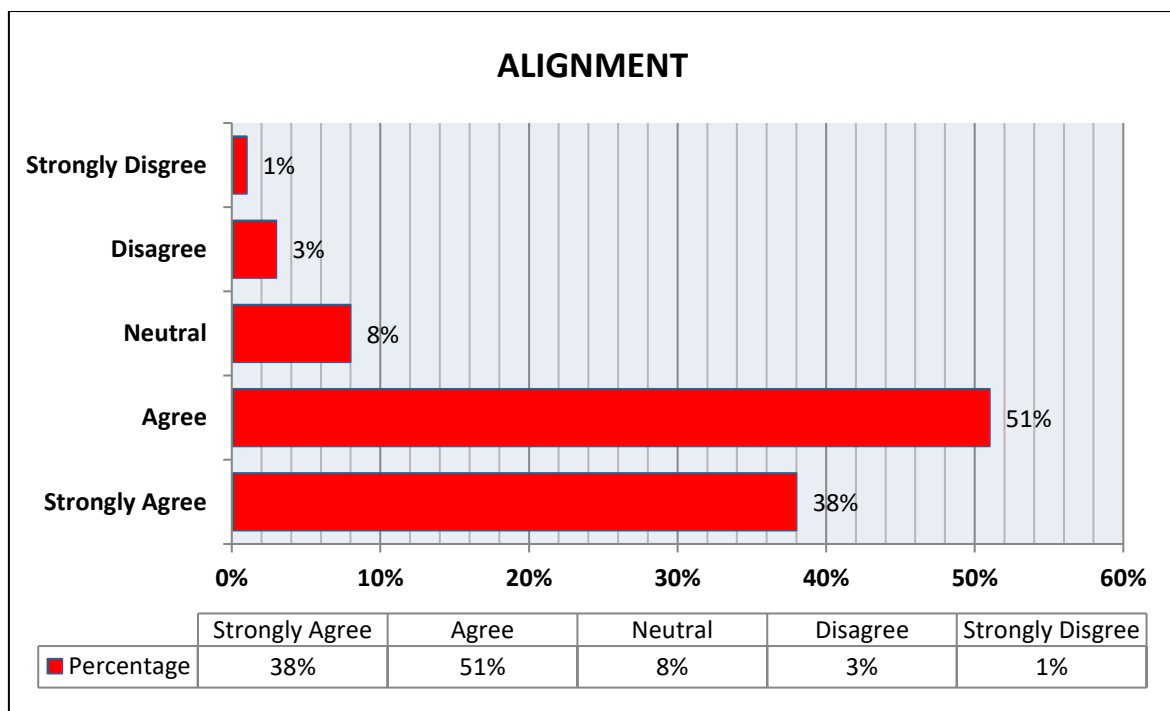


**Figure 5.19: PPM Perceived Performance (author’s own construction)**

Most respondents (40%), when combined (disagree – 35%, and strongly disagree – 5%), disagree with the statement. The assertion that project portfolio management has no significant failure risks and is generally successful did not sway 32% of respondents, while 28% (agree 26% and strongly Agree 2) demonstrate disagreement with it.

**Statement 9: Alignment is crucial as it is the final decision on how the projects to be executed align to strategic objectives.**

**Response and Interpretation:** The purpose of this statement is to ascertain how respondents or drivers of portfolio management perceive the importance of alignment projects to be executed and the strategic objectives. The strategic alignment of projects to portfolio and strategic objective is an important factor in the portfolio management success. This statement is self-explanatory, Figure 5.20 indicates the responses to this assertion.

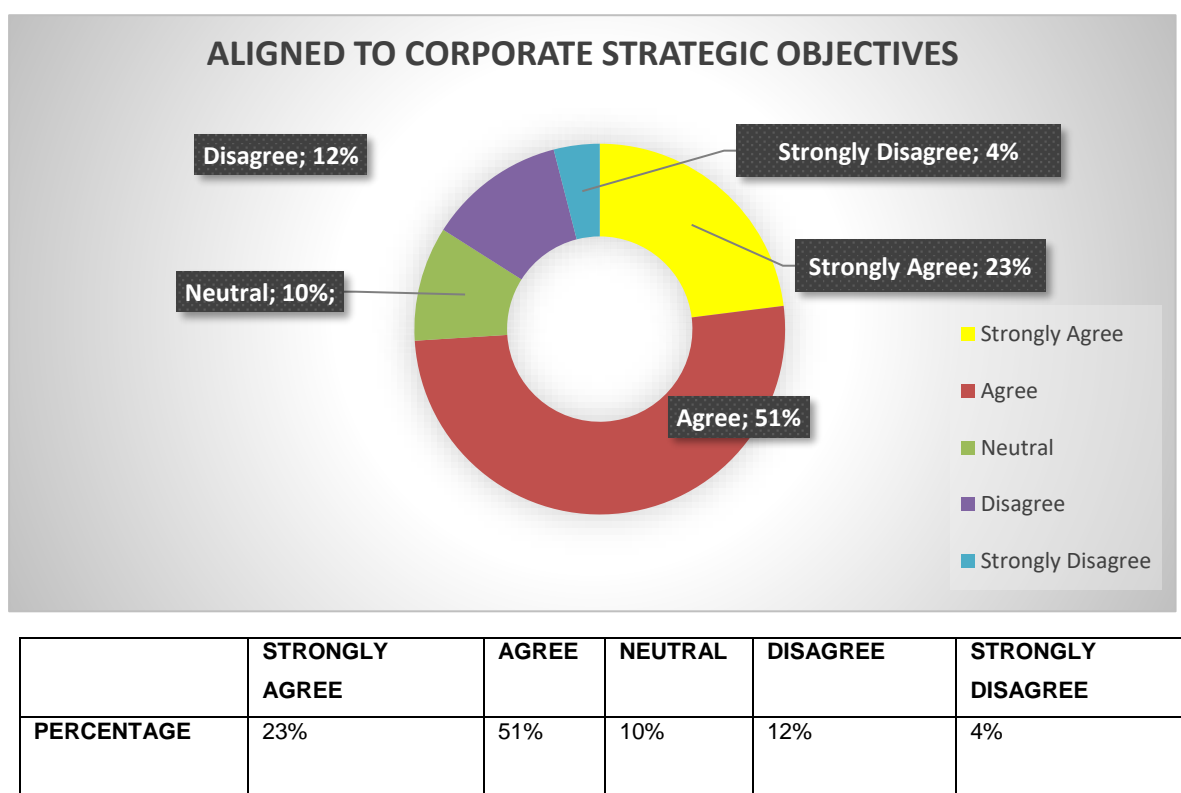


**Figure 5.20: Importance of alignment with strategic objectives (author’s own construction)**

The majority of respondents (89%) when combined (agree – 51%, and strongly agree – 38%) support the statement. A proportion of 8% of the respondents remain neutral or undecided, while a total of 4% of respondents do not agree with the statement (disagree – 3%, and strongly disagree – 1%). Therefore, the generalisation can be made that alignment is crucial as it is the final decision on how the projects to be executed align with organisation strategic objectives/goals.

**Statement 10: Projects are aligned to corporate strategic objectives dependent on the resources available.**

**Response and Interpretation:** The purpose of this statement is to ascertain how project portfolio management drivers perceive the importance of project, portfolio, and programme alignment to the strategy. According to research, when projects were in line with business strategies, corporate economic performance and portfolio success rates significantly increased. The company as a whole improves when each project directly benefits the company, enhancing client experiences and retention rates. Figure 5.21 indicates the responses to this assertion.

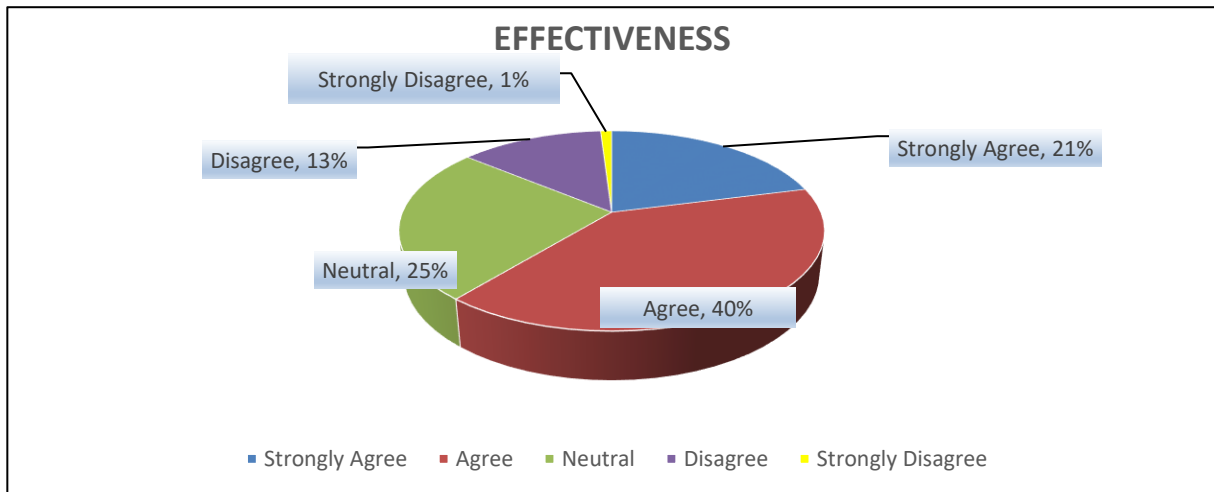


**Figure 5.21: Projects aligned with Corporate Strategic Objectives (author’s own construction)**

Most respondents (74%), when combined (agree – 51%, and strongly agree – 23%), agree with the statement. 10% of respondents did not decide about the statement, while 16% (disagree 12% and strongly disagree 4%) show agreement with the statement that stakeholder influence can be monitored through the project. Conclusions can be drawn that stakeholder influence cannot be monitored through the project.

**Statement 11: Aligning the strategic objectives to the portfolio management is the final requirement for effective project portfolio management.**

**Response and Interpretation:** The purpose of this statement is to ascertain if project, programme, or individual initiatives align with the organisation's long-term business goals. Each project must in some way support the company's plan to be implemented. The company as a whole improves when each project directly benefits the company, enhancing client experiences and retention rates. Figure 5.22 indicates the responses to this assertion.



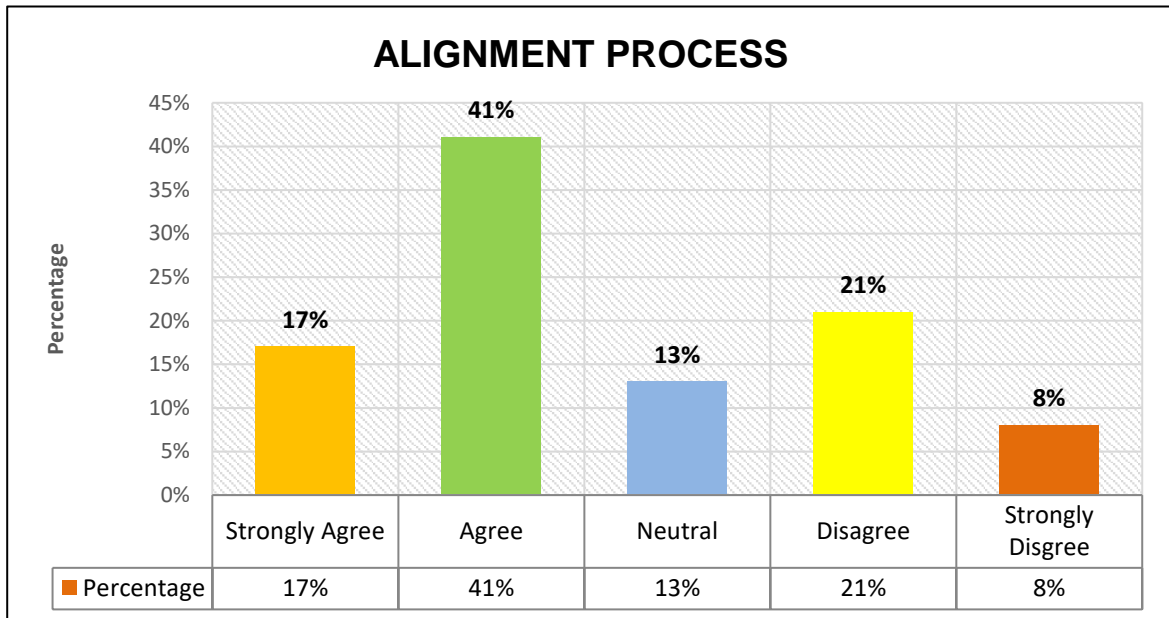
	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE
PERCENTAGE	21%	40%	25%	13%	1%

**Figure 5.22: Effective Project Portfolio Management (author's own construction)**

A total of 61% (40% agree and 21% strongly agree) support aligning the strategic objectives to the portfolio management as the final requirement for effective project portfolio management, while 25% of respondents remain neutral. A portion of 14% (13% disagree and 1% strongly disagree) of respondents do not affirm the statement. Based on the results, it can be concluded that the respondents understand that each of the project's portfolio must in some way support company's plan to be implemented.

**Statement 12: Alignment of projects to strategic objectives is the prerogative of the portfolio or line manager.**

**Response and Interpretation:** This question sought to find out from the respondent who has the responsibility of aligning projects to strategic objectives in their organisation processes. The responses to the organisation’s strategic objectives are reported in Figure 5.23.

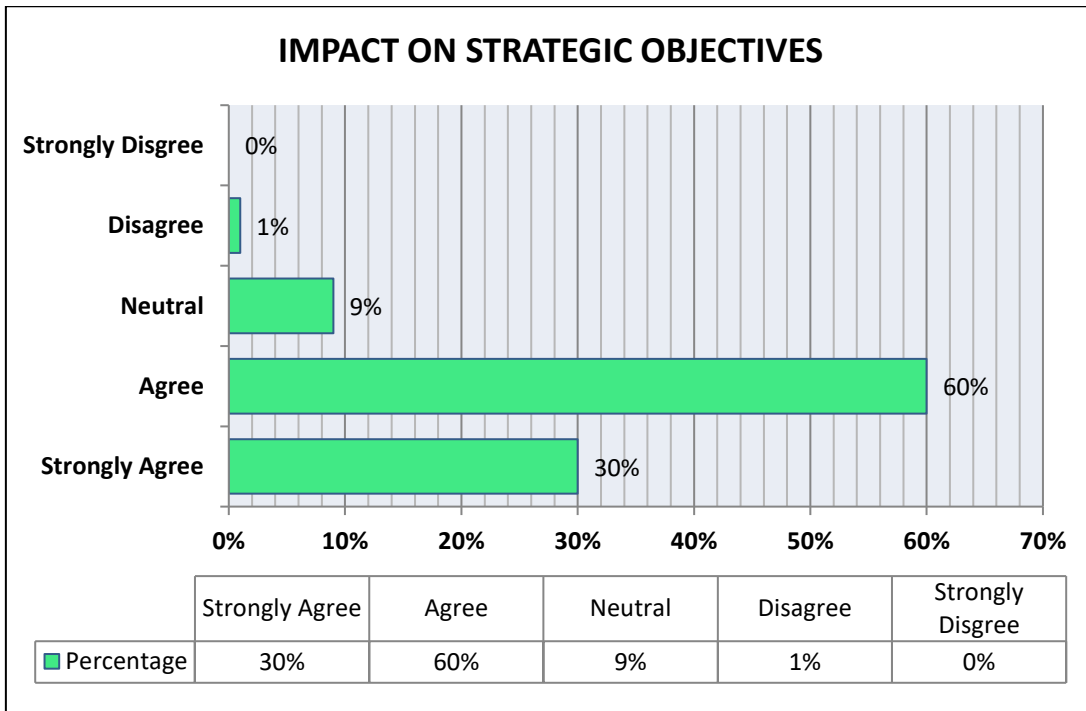


**Figure 5.23: Alignment Process (author’s own construction)**

A total of 58% (agree – 41% and strongly agree – 17%) confirm the assentation made by the statement, while 29% of respondents, which is the second-largest proportion of responses, disagreed with the statement. A total of 13% of respondents are undecided and remain neutral on the statement. Therefore, it can be concluded that the majority of respondents affirm that alignment of projects to strategic objectives is not the prerogative of the portfolio or line manager.

**Statement 13: We have the responsibility to maximise the contribution to strategic objectives.**

**Response and Interpretation:** This question sought to find out from the respondents, whether they have the responsibility to maximise contribution towards strategic objectives in their organisation processes. The responses to the statement are illustrated in Figure 5.24.

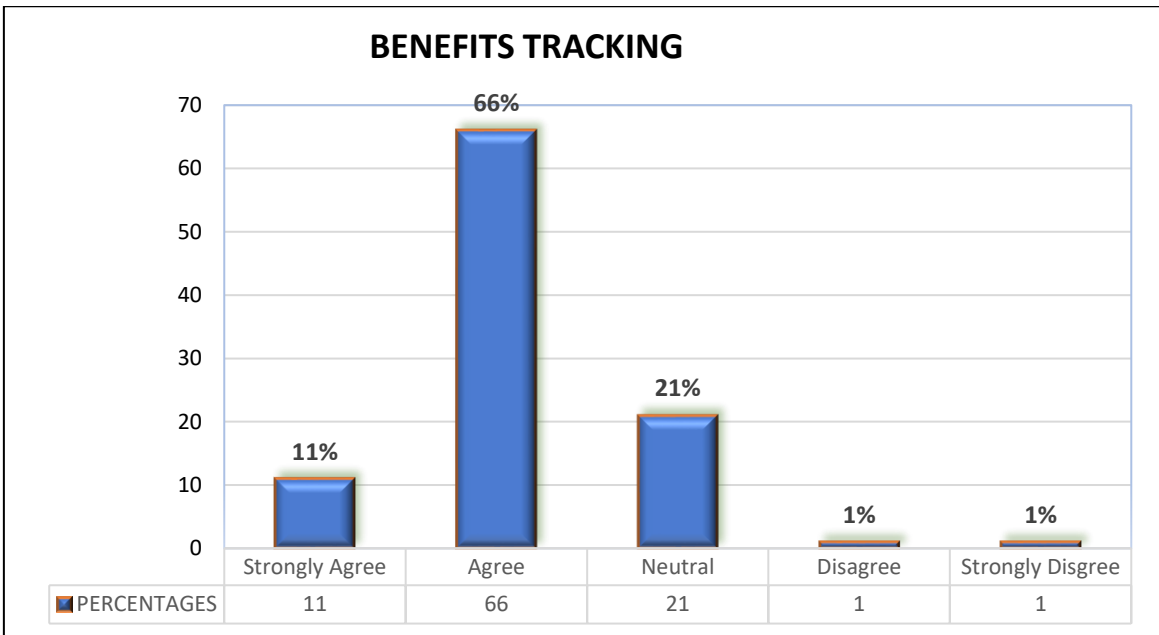


**Figure 5.24: Impact on Strategic Objectives (author’s own construction)**

Most respondents at 90%, when combined (agree – 60%, and strongly agree – 30%), agree with the statement, while 9% of respondents did not decide about the statement, only 1% (disagree 1% and strongly disagree 0%) show no agreement with the statement. Conclusions can be drawn that there is a clear demonstration of a responsibility to maximise the contribution towards strategic objectives.

**Statement 14: Our portfolio delivers most of its defined benefits**

**Response and Interpretation:** This statement sought to find out the portfolio performance, tracking the realisation of benefits management. The responses to the statement are reported in Figure 5.25.



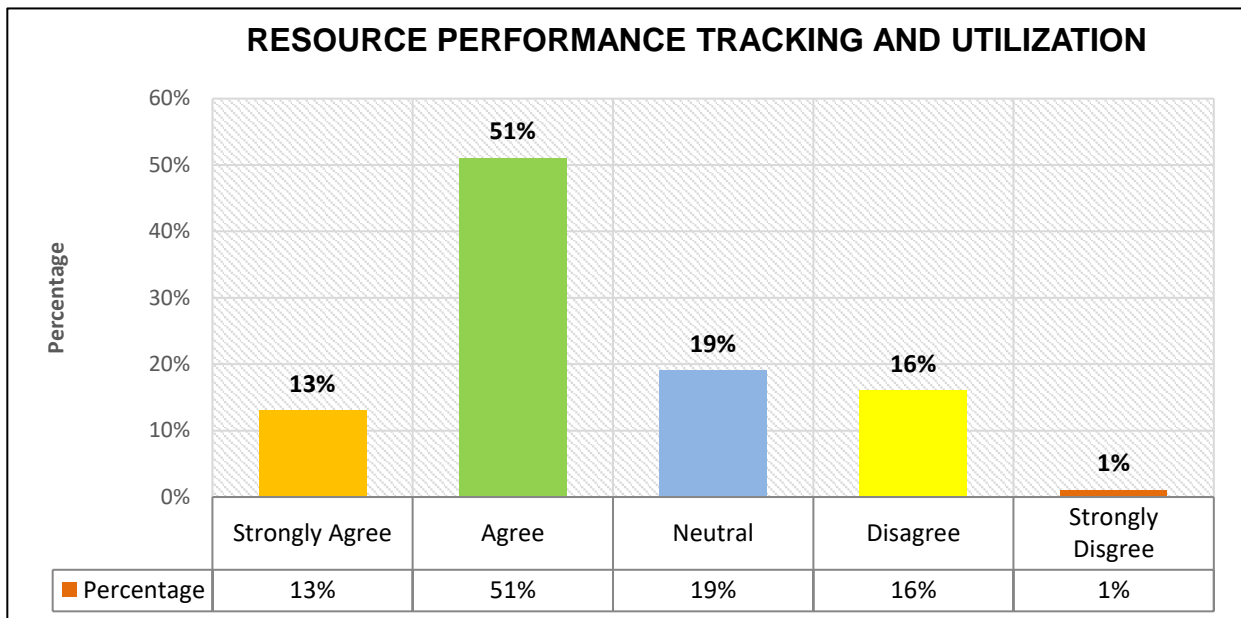
**Figure 5.25: Benefits Tracking (author’s own construction)**

Most respondents at 77%, when combined (agree – 66%, and strongly agree – 11%), agree with the statement. 21% of respondents are undecided/neutral about the statement, only 2% (disagree 1% and strongly disagree 1%) show no agreement with the statement. Recommendation can be drawn that there is a clear demonstration of a matured portfolio management process that monitors benefits tracking management.



**Statement 15: Portfolio has resource performance tracking and utilization.**

**Response and Interpretation:** This question sought to find out the portfolio performance, tracking the realisation of benefits management. The responses to the statement are reported in Figure 5.26.

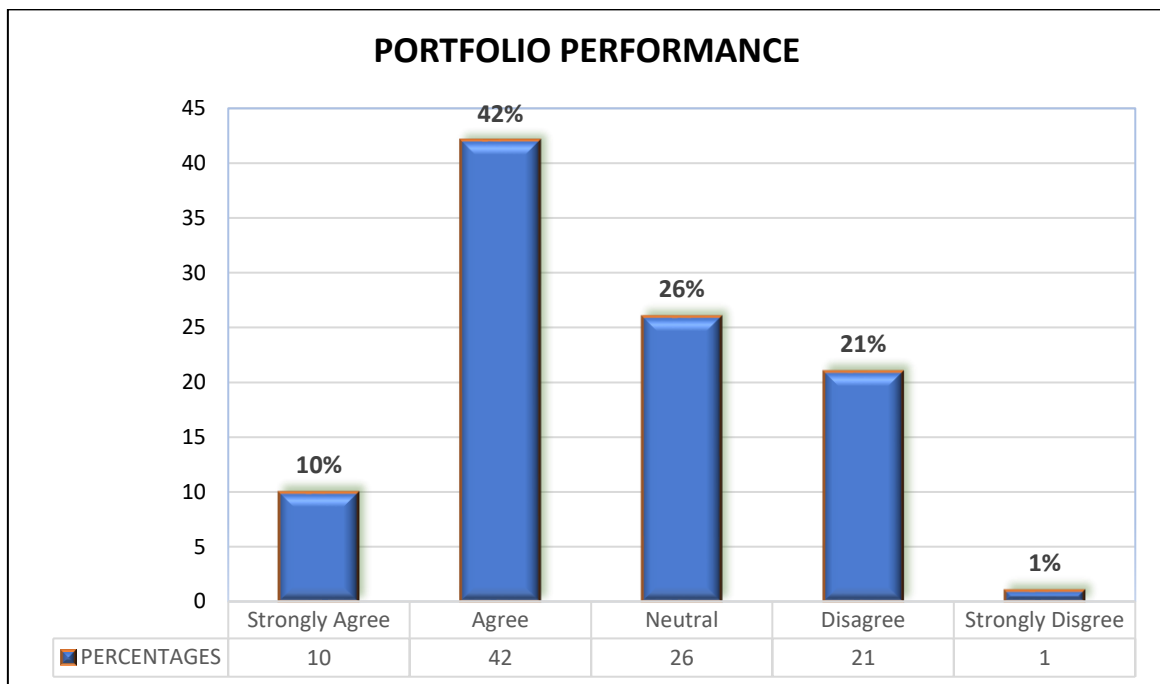


**Figure 5.26: Resource Performance Tracking and Utilisation (author's own construction)**

The highest percentage of respondents are in support with the statement at 64% (agree – 13% and strongly agree 51%) while respondents who do not support the statement are at 17% (16% agree and strongly disagree 1%) and 19% of the respondents have not taken any decision about the statement. Therefore, a conclusion can be drawn that matured portfolio management process and tools are available to monitor project portfolio resource performance tracking and utilisation.

**Statement 16: Portfolio underperforms as a result of risks that could have been anticipated.**

**Response and Interpretation:** The purpose of this question was to learn from the respondents about their approach to risk management. In the financial world, risk management is the process of identifying, analysing, and accepting or mitigating uncertainty in investment decisions. It is just as crucial to evaluate a portfolio's risk as it is to consider its rewards. Different metrics can be used to assess volatility in returns, which is frequently viewed as the portfolio risk. The responses to this statement are reported in Figure 5.26.



**Figure 5.26: Portfolio Performance (author's own construction)**

The majority of respondents at 62% when combined (agree – 42%, and strongly agree – 10%) support the statement. A proportion of 26% of respondents remain neutral or undecided, while a total of 22% of respondents do not agree with the statement (disagree – 21%, and strongly disagree – 1%). Therefore, generalisation can be made that it is just as crucial to evaluate a portfolio's risk as it is to consider its rewards.

### Statement 17: Individual project performance are not Maximised anymore

**Response and Interpretation:** This statement aimed to learn the respondent's level of project and portfolio management maturity as well as their attitude toward portfolio management and individual project performance. Employee preference for managing single projects has been identified as one of the obstacles to good portfolio management. Petro and Gardiner, (2015:1717-1729) mentioned that value is maximised by choosing the projects with the best value and wisely allocating resources to them. Respondents validated that it is important to assess how well each project performed, looking at ways that it could be improved, and assessing how each project contributed to the overall goals of the business. The response to the statement is presented in Figure 5.26.

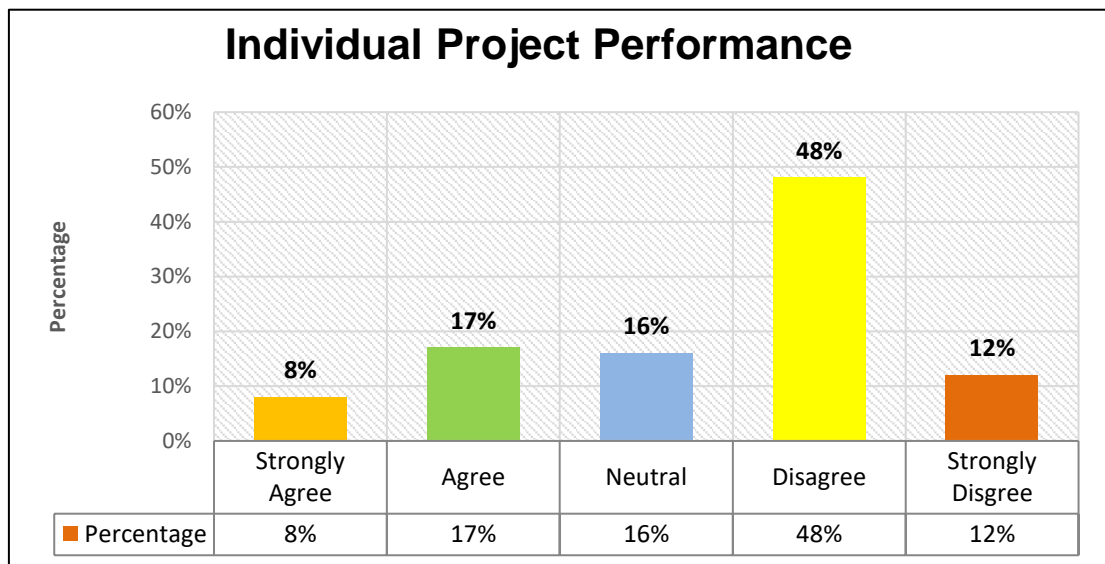
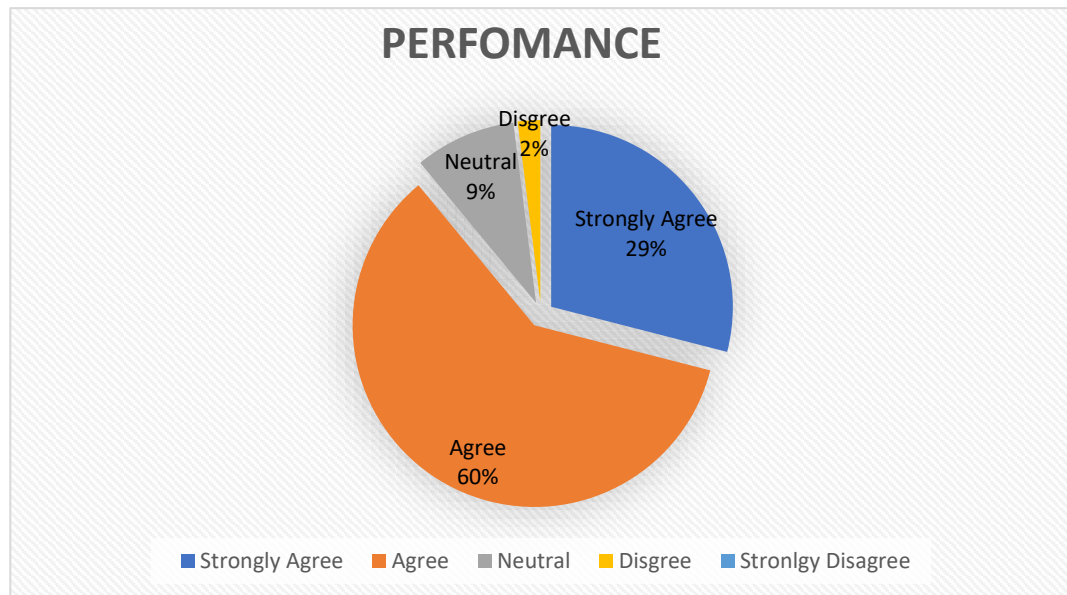


Figure 5.26: Individual Project Performance (author's own construction)

The highest percentage of respondents are not in support with the statement at 60% (disagree – 48% and strongly disagree 12%) while 25% respondents support the statement (17% agree and strongly agree 8%) and 16% of the respondents have not taken any decision about the statement. Therefore, a conclusion can be drawn that portfolio managers recognise the performance of individual projects within the portfolio. A well-managed project is more likely to have a great impact and big ROI.

**Statement 18: We strive to perform better in order to achieve corporate strategic objectives.**

**Response and Interpretation:** This statement sought to find out the portfolio performance, tracking the realisation of strategic objectives and the total accomplishment of all projects that have been carried out and are contributing to the organisation's long-term goals. The responses to the statement are illustrated in Figure 5.27.



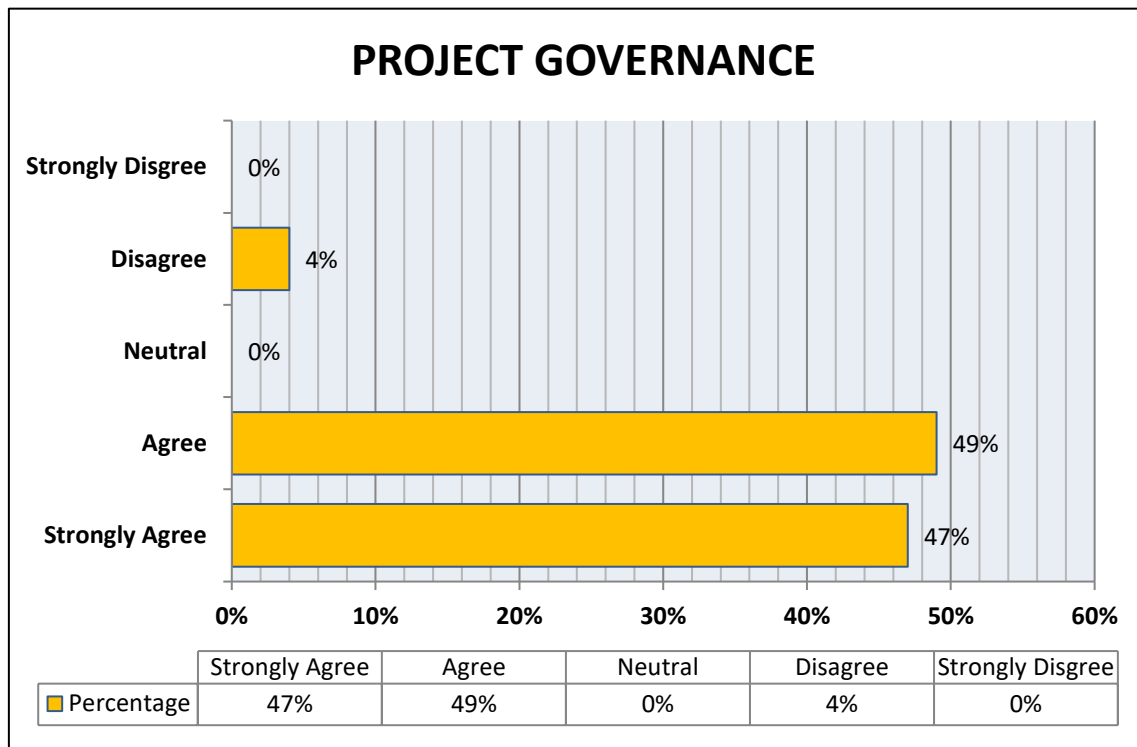
	<b>STRONGLY AGREE</b>	<b>AGREE</b>	<b>NEUTRAL</b>	<b>DISAGREE</b>	<b>STRONGLY DISAGREE</b>
<b>PERCENTAGE</b>	29%	60%	9%	2%	0%

**Figure 5.27: Portfolio Performance to Achieve Strategic Objectives (author's own construction)**

The majority of respondents (89%) (agree – 60%, and strongly agree – 29%) support the statement of striving for a better performance to achieve strategic objectives. A proportion of 9% of respondents remain neutral or undecided, while a total of 2% of respondents do not agree with the statement (disagree – 2%, and strongly disagree – 0%). Based on the results, a conclusion can be made that performing better to achieve corporate strategic objectives is essential.

**Statements 19: Effective project portfolio management can improve project governance**

**Response and Interpretation:** This statement enables to ascertain the respondents' thoughts about project governance. Scholars of project management agree that strong project portfolio governance is the number one success factor for making portfolio management successful. The response to the statement is presented in Figure 5.28.

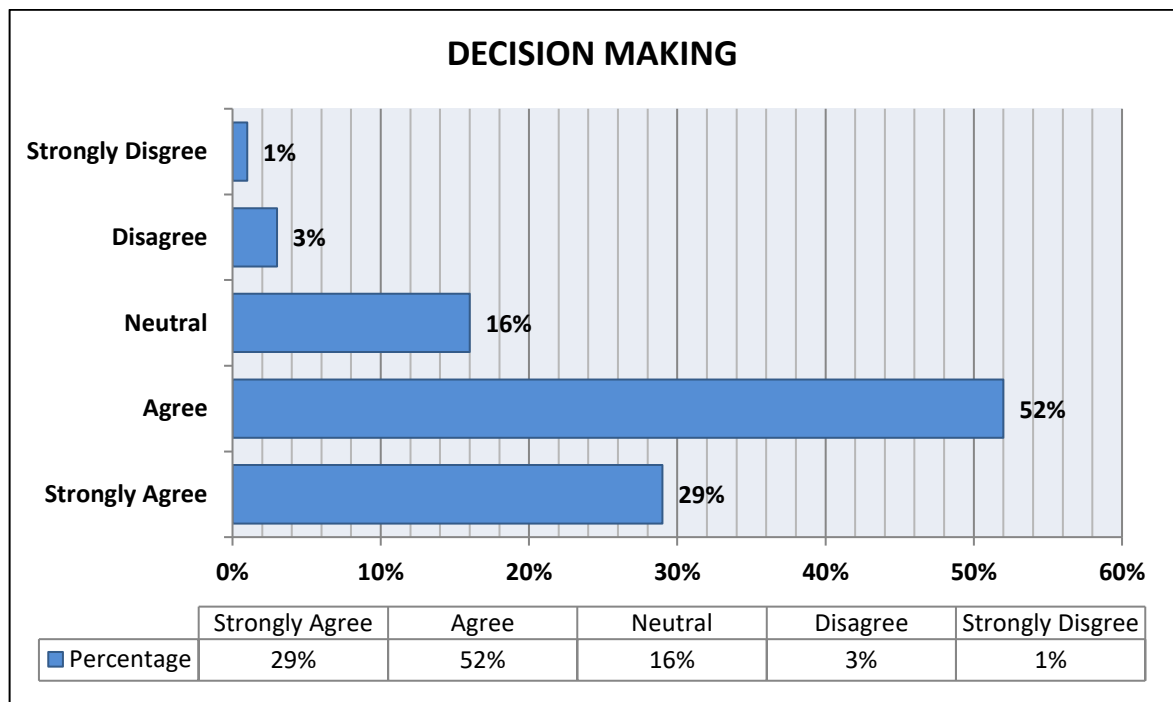


**Figure 5.28: Project Governance (author’s own construction)**

The majority of the respondents at 96% when combined (agree – 50%, and strongly agree – 47%) support the statement of striving for a better performance to achieve strategic objectives. A total of 4% of respondents do not agree with the statement (disagree – 4%, and strongly disagree – 0%). Based on the results, a conclusion can be made that governance includes the following components: administration, compliance, risk management, and ethics. However, Costantino et al., (2015:1744-1754) posit that strong project portfolio governance is the number one success factor for making portfolio management successful.

**Statement 20: Portfolio review phase helps in deciding on what projects to kill or what to keep in the portfolio.**

**Response and Interpretation:** Portfolio reviews and performance measures can also help manage the project while implementing it. A well-managed project is more likely to have a big impact and big ROI. This supports determining which project is not performing, what the risks are with regards to the project and which one to kill. Projects are killed based on the risk assessment metrics and project implementation readiness assessment. The response to the statement is illustrated in Figure 5.29.

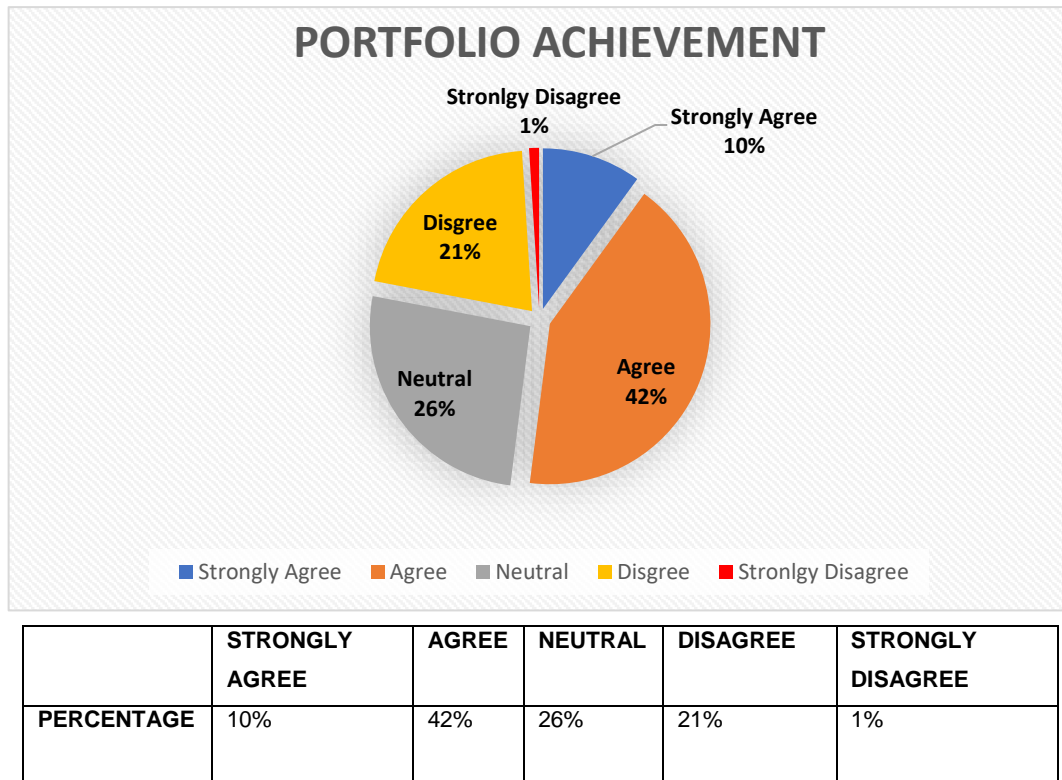


**Figure 5.29: Decision Making (author’s own construction)**

The majority of respondents at 81% when combined (agree – 52%, and strongly agree – 29%) support the statement of striving for a better performance to achieve strategic objectives. A total of 4% of respondents do not agree with the statement (disagree – 4%, and strongly disagree – 0%). Based on the results, a conclusion can be made that project reviews assist the organisation or management in taking informed decisions about the projects and portfolio. Projects or portfolio are killed based on the risks assessment metrics and project implementation readiness assessment. Strong project portfolio governance is the number one success factor for making portfolio management successful.

**Statement 21: Our portfolio aims towards achievement of strategic objectives for the least time, cost and risk.**

**Response and Interpretation:** Project portfolio management concentrates on the overall success of all implemented projects working towards the long-term objectives of the organisation. It is expected that employees in an organisation should work toward achieving company goals. The response to the statement is illustrated in Figure 5.30.

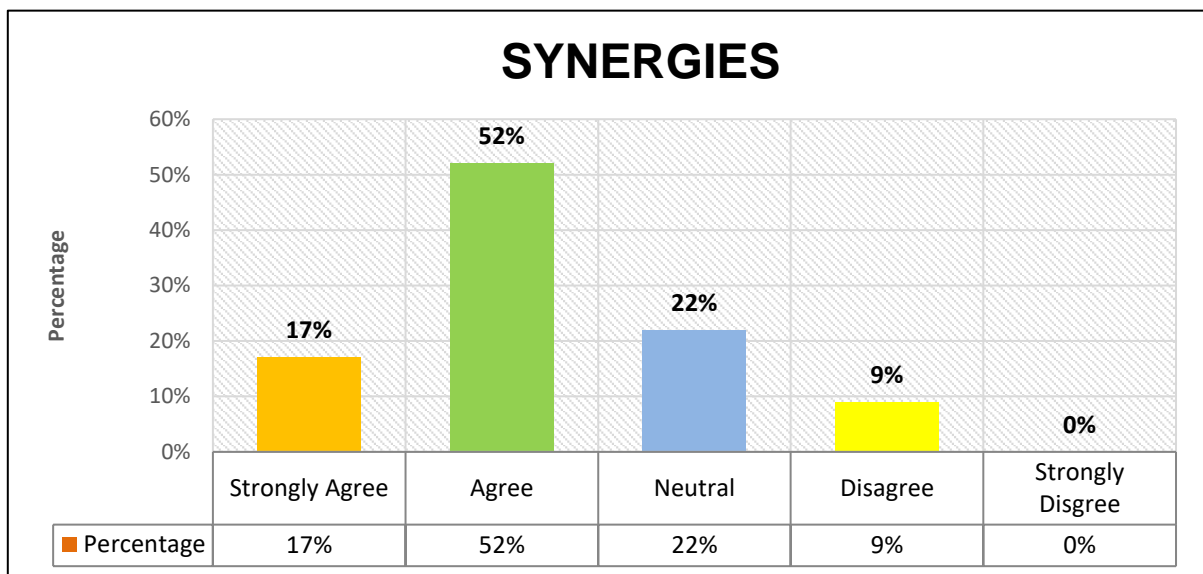


**Figure 5.30: Portfolio Achievement (author’s own construction)**

A total of 52% (42% agree and 10% strongly agree) support this statement that portfolio aims towards achievement of strategic objectives for the least time, cost and risk, while 22% (21% disagree and 1% strongly disagree) of respondents do not support the statement even though 26% of respondents remain neutral. Based on the findings, it is possible to conclude that in a Western Cape Municipality, the project environment portfolio strives to achieve strategic objectives with the least amount of time, money, and risk. Costantino et al., (2015:1744-1754) alludes strategic objectives are the company's long-term goals. They explain what the company will undertake to achieve its purpose.

**Statement 22: In our organisation making use of synergies between projects is highly encouraged.**

**Response and Interpretation:** The idea of synergy asserts that two projects typically perform and add value above and beyond the sum of their respective parts. Project portfolio management creates project environment synergy by combining related projects to have a bigger impact than they would alone. High productivity, efficiency, and employee accountability are produced via synergy. Respondents reaffirm this is only accomplished when everyone works together to see the project through to completion and corporate strategic goals are in line. The response to the statement is illustrated in Figure 5.31.



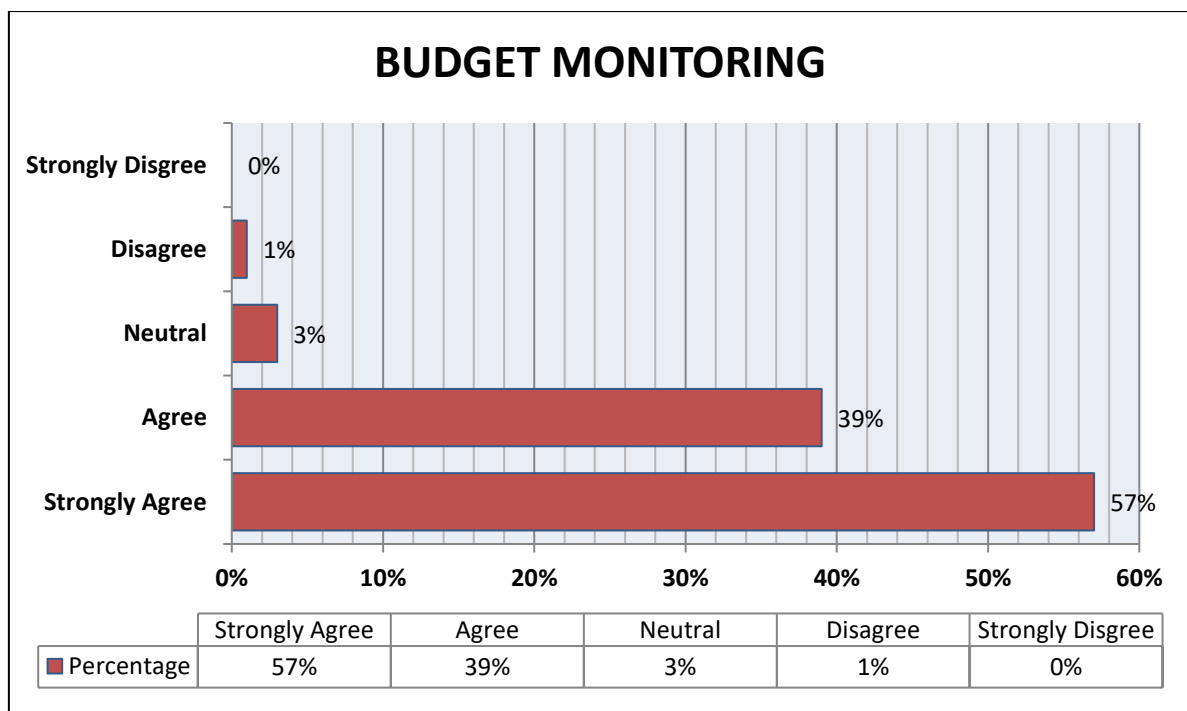
**Figure 5.31: Synergies (author's own construction)**

A total of 69% (52% agree and 17% strongly agree) think that using synergies between projects is highly recommended. Despite the fact that 9% of respondents disagree and do not endorse the statement, 22% stay neutral. It is possible to conclude that project portfolio management in a Western Cape Municipality fosters project environment synergy by merging similar projects to have a greater impact than they would alone. These figures confirm that synergy produces great production, efficiency, and employee accountability.



**Statement 23: Regular budget monitoring is critical for effectively managing the project portfolio.**

**Response and Interpretation:** The value of budgeting in project management rests in its capacity to reduce wasteful spending and properly allocate funds to each relevant demand. Budget management is to keep project expenditures within the limits of the approved spending plan while achieving the anticipated project objectives. Only if the portfolio manager continuously tracks the budget and finances can you exercise control. The responses to the statement are illustrated in Figure 5.32 below

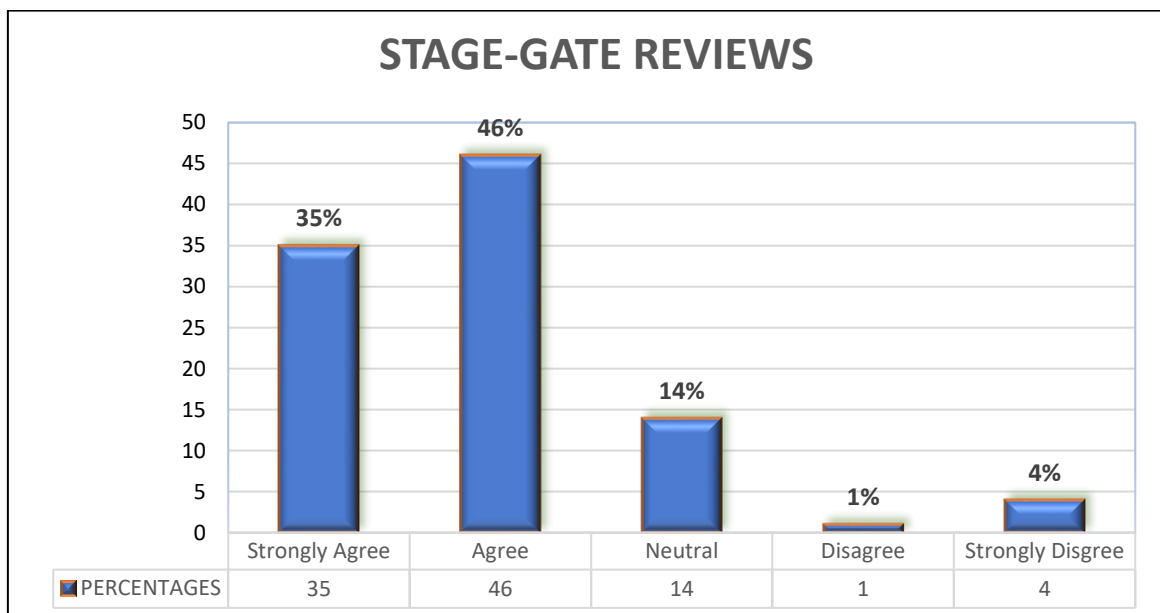


**Figure 5.32: Portfolio Budget Monitoring (author’s own construction)**

The highest percentage of respondents are in support with the statement at 96% (agree – 39% and strongly agree 57%) while respondents who do not support the statement at 1% (16% agree and strongly disagree 1%) and 3% of the respondents have not taken any decision about the statement. Therefore, a conclusion can be drawn that consistent budget monitoring is critical for effectively managing the project portfolio. Without proper budget monitoring, a project may not be completed on time. Regular budget monitoring allows the project manager to know how much he can spend on any given aspect of the project.

**Statement 24: The practice of stage-gate or other similar frameworks is good for the success of the project portfolio.**

**Response and Interpretation:** Project gates reviews are significant moments when the present state of the project is formally reviewed. They most frequently arise at project phase transitions and signify a time when the sponsor and stakeholders will face greater risk, expense, and reward. Bushuyev and Verenych (2018 104-127) point of view in developing organizational maturity for effective project management. The researcher's further states that stage gate concept in project management methodology has the power to improve organisation project management, produce more successful projects, and develop project or portfolio manager. The responses to the statement are illustrated in Figure 5.33.

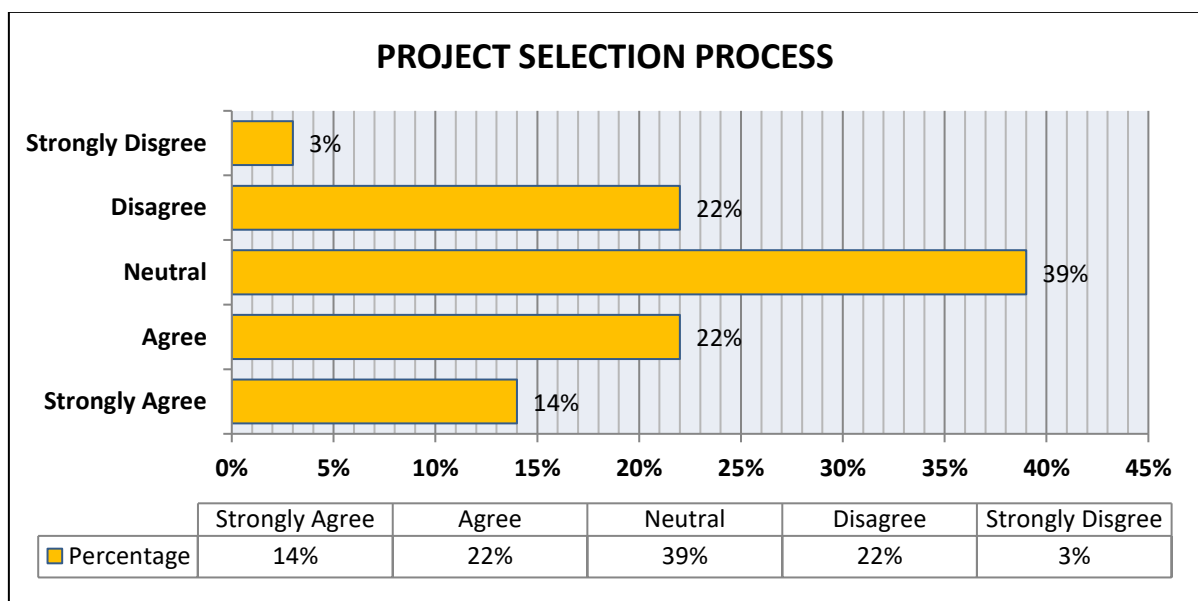


**Figure 5.33: Stage Gate Reviews (author's own construction)**

Most respondents at 81%, when combined (agree – 46%, and strongly agree – 35%), agree with the statement on stage gates reviews and 14% of respondents did not decide about the statement, while only 5% (disagree 1% and strongly disagree 4%) show disagreement with the statement. Conclusions can be drawn that project drivers are comfortable with the state gate concept and processes, teams can evaluate their work critically using the phase gate approach, which also provides for ongoing quality and rationale monitoring. If a project phase does not meet specific requirements, there are more options to move resources around, which results in the success of project implementation.

**Statement 25: Too many weak projects are approved, not considering resources, value, and priority properly**

**Response and Interpretation:** By selecting the best group of projects, firms may stay on track with their objectives and utilise their available resources. Martinsuo, (2012:1-13) alludes in order for firms to successfully accomplish their competitive advantage and corporate objectives, choosing the appropriate set of projects is important. The responses to the statement are illustrated in Figure 5.34.

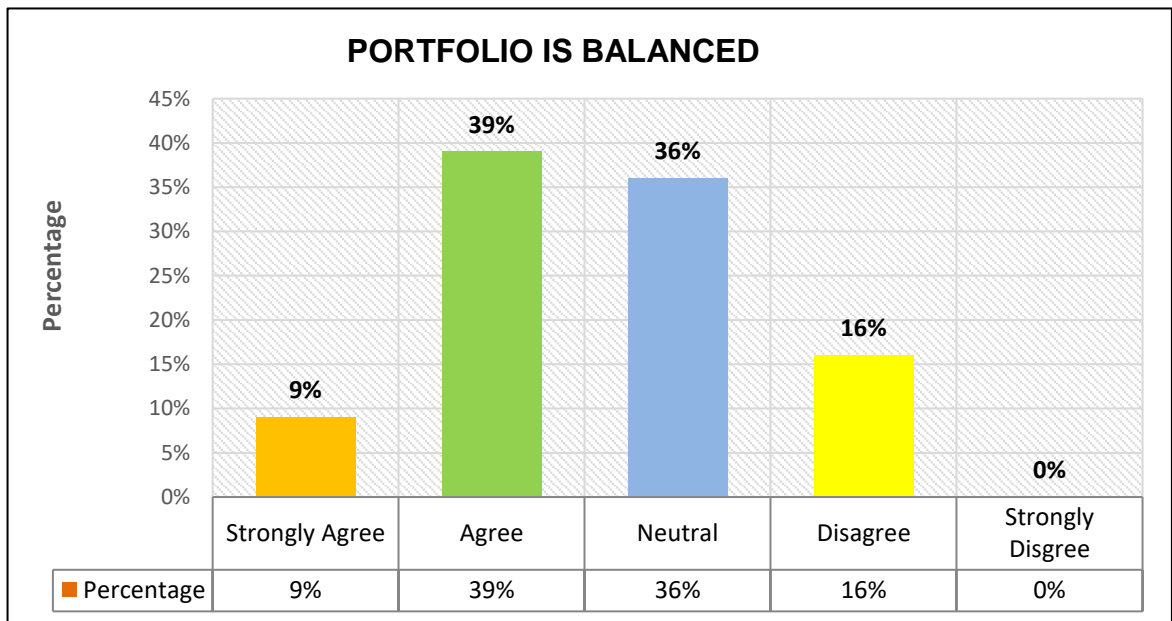


**Figure 5.34: Project Selection Process (author’s own construction)**

The highest proportion of respondents were undecided. Respondents displayed a neutral position with the statement 39%, while a total of 36% (22% agree and 14% strongly agree) with the statement and only 25% (22% disagree and 3% strongly disagree) respondents are not in support of the statement. Due to the majority of respondents taking a neutral stance and being unable to decide on the statement, it is not possible to draw a definitive conclusion from the results. The contrast between those who agree with the statement and those who disagree with it is not particularly convincing.

**Statement 26: In our organisation, the portfolio is balanced based on risk vs. achieving the growth and profit objectives**

**Response and Interpretation:** To reach the proper ratios of risk and return potential in your investment portfolio, a portfolio must be balanced. Our organisation provides funds: one that seeks to balance income and growth, while concentrating on limiting downside risk and achieving capital growth. The responses to the statement are illustrated in Figure 5.35 below

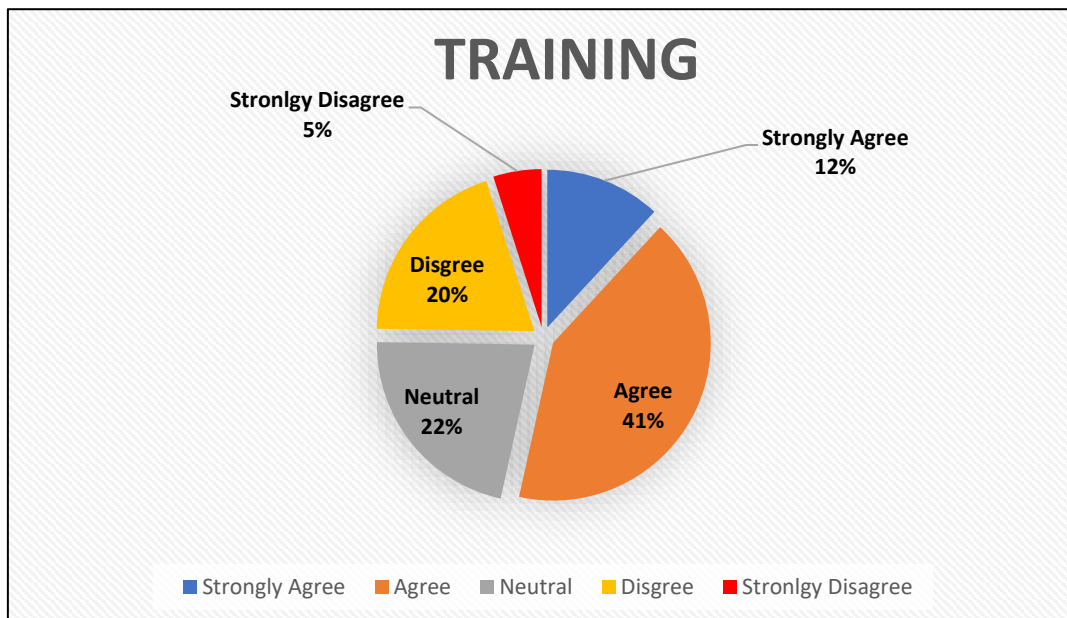


**Figure 5.35: Portfolio Balance (author’s own construction)**

Most respondents at 48%, when combined (agree – 39%, and strongly agree – 9%), agree with the statement that portfolio is balanced based on risk versus achieving the growth and profit objectives. Meanwhile, 36% of respondents remain neutral about the statement, while only 16% (disagree 16% and strongly disagree 0%) show disagreement with the statement. Conclusions can be drawn that building a portfolio that meets your unique risk tolerance and investing objectives is the process of balancing your portfolio. To simply ‘set it and forget it’ is insufficient. Rebalancing, often known as maintaining portfolio balance, is another requirement (Martinsuo, 2012:1-13).

**Statement 27: We all have relevant training/knowledge on the use of project portfolio systems.**

**Response and Interpretation:** Formal education alone is insufficient to drive a successful portfolio of projects that match the company's objectives. Regular training is necessary. The purpose of training and development in the workplace is to improve employees' knowledge and abilities while supplying them with knowledge and guidance on how to better carry out particular jobs. The employer who is responsible for the roll out the PPM system should have standard operating processes, software, and training for the efficient sharing of pertinent data for portfolio analysis, decision-making, goal-setting, project status, project prioritisation/ranking, and consumed and available resource capacity. The response to the statement is illustrated in Figure 5.36.

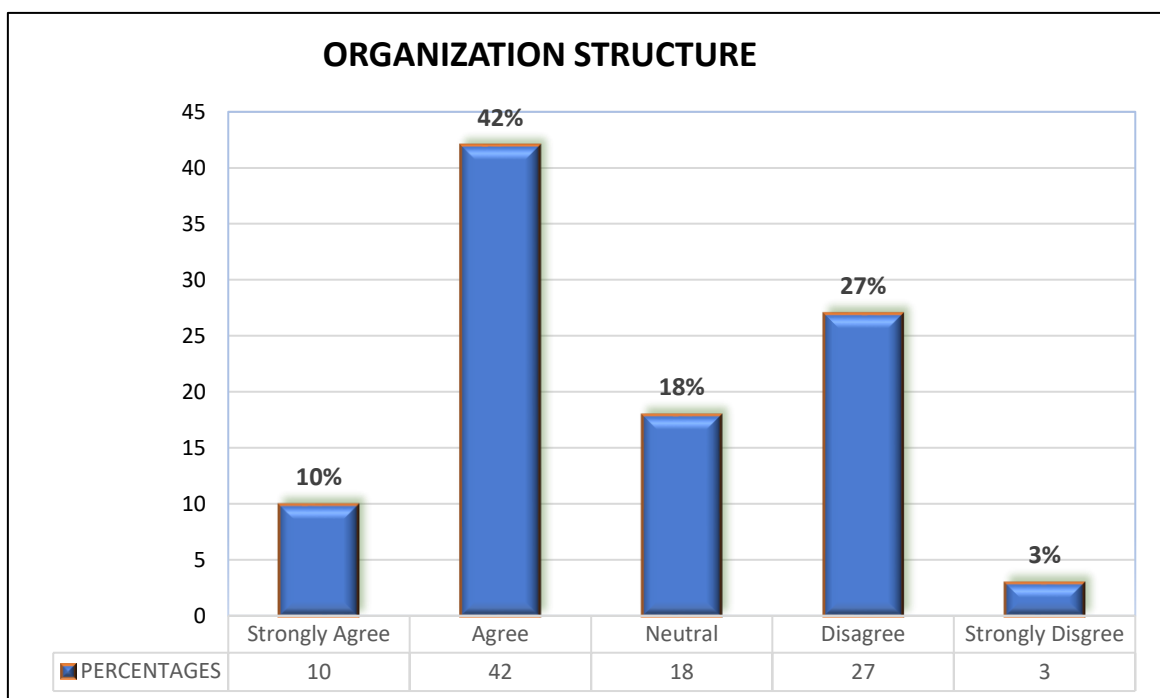


**Figure 5.36: PPM Training (author's own construction)**

Most respondents at 54%, when combined (agree – 42%, and strongly agree – 12%), agree with the statement on training and knowledge. However, 22% of respondents remain neutral about the statement, while only 25% (disagree 16% and strongly disagree 0%) show disagreement with the statement. Conclusions can be drawn that standard operating procedures, software, and training for the efficient sharing of pertinent knowledge and information are needed if one wants to succeed with project portfolio management.

**Statement 28: Our organisation structure is optimised to ensure efficiency of decision making.**

**Response and Interpretation:** Organisational structure is arguably the most significant factor in how decisions are made in a corporation. It enhances operational and capital efficiency. Departments can operate more like well-oiled machines, concentrating time and resources on worthwhile activities, by paying attention to the organisational structure. Every organisation's effectiveness is influenced by its ability to make decisions, which is a key tool. Decisions that generate the desired outcomes are effective decisions. The response to the statement is illustrated in Figure 5.37.

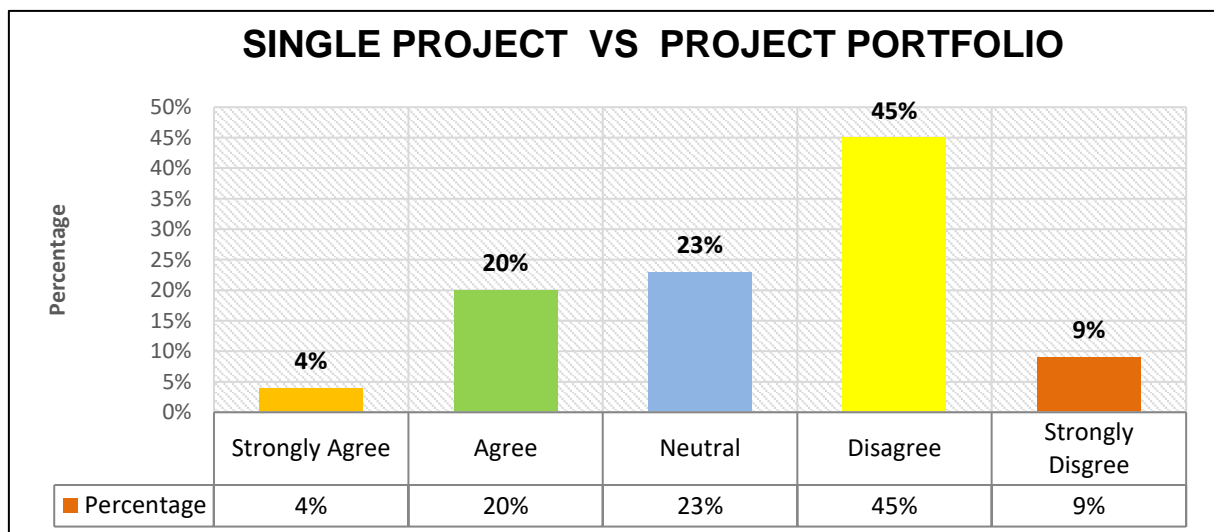


**Figure 5.37: Organisational Structure (author's own construction)**

Most participants at 52%, when combined (strongly agree – 10% and agree – 42%) support the statement, while only 30% (strongly disagree – 3% and disagree – 27%) of respondents do not support the statement, and 18% of respondents remain neutral. Therefore, a conclusion can be drawn from the findings that Western Cape Municipality project portfolio management employees where the sample was taken agree that the organisation structure is optimised to ensure efficiency of decision making.

**Statement 29: In our organisation, the success of a single project is more important than the success of a project portfolio.**

**Response and Interpretation:** Project portfolio management is the process of choosing and successfully implementing the ideal projects for the organisation, as opposed to project management, which focuses on successfully leading a single project. Despite the fact that the boundary between project management and project portfolio management is rather hazy, there is one. Although both parties are very concerned with the successful implementation of projects, a project manager is only concerned with the success of one specific project, whereas a project portfolio manager is concerned with the overall success of all implemented projects that contribute to the organisation's long-term goals. Bushuyev and Verenych (2018: 104-127) argues that remark was made on purpose to find out the standard operating procedure in their respective departments or work areas and to learn which one is more crucial. The response to the statement is illustrated in Figure 5.38.



**Figure 5.38: Single Project vs Portfolio of Projects (author's own construction)**

Most participants at 54%, when combined (strongly disagree – 9% and disagree – 45%) do not support the statement, while only 24% (strongly agree – 4% and disagree – 20%) of respondents support the statement, and 23% of respondents remain neutral. Therefore, a conclusion can be drawn from the findings that the success of a single project is not more important than the success of a project portfolio.

**Statement 30: We are equally trained to understand the organisations strategic goals and objectives.**

**Response and Interpretation:** The integrated development plan (IDP) for municipal strategic objectives is revised every five years, which necessitates updating the portfolio's alignment with those objectives. As a result, organisations should provide mandatory training geared toward the most recent objectives. Organisations must have standard operating processes, software, and training for the efficient sharing of pertinent data for portfolio analysis, decision-making, goal-setting, project status, project prioritisation/ranking, and consumed and available resource capacity. The response to the statement is illustrated in Figure 5.39.



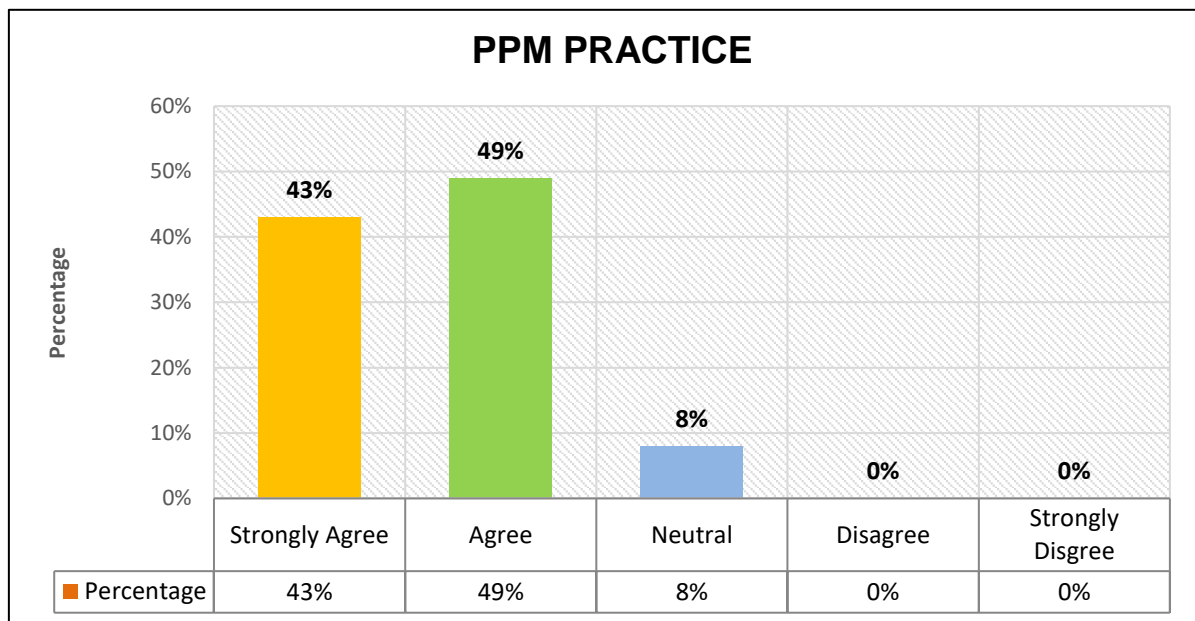
**Figure 5.39: Trainings on Strategic Goals (author’s own construction)**

Most participants at 40%, when combined (agree – 27% and strongly agree – 13%) support the statement, while only 33% (disagree – 4% and strongly disagree – 29%) of respondents do not support the statement, and 27% of respondents remain neutral. Therefore, the numbers indicate that more trainings of strategic objectives are required for employees.



**Statement 31: Project portfolio management is a useful process that can assist senior management to make decisions with a bigger picture in mind.**

**Response and Interpretation:** Effective portfolio management increases the value of an organisation by aligning projects with its strategic goals, making the best use of its limited resources, and generating synergies among projects. Unfortunately, organisations usually perform inadequate portfolio management. They are unable to generate strategic results either they take on the wrong projects or take on too many tasks. Figure 40 depicts the response to the statement. 40.



**Figure 5.40: PPM Influence (author's own construction)**

Most participants at 92% when combined (agree – 49% and strongly agree – 43%) support the statement, while only 8% of respondents remain neutral. Therefore, a conclusion can be drawn that an overwhelming majority of respondents perceive project portfolio management as a useful model and system that assists senior management to make informed decision making. When you examine the question 11 (How successful do you perceive your organisation's project portfolio management), the answer is not unexpected. 93% respondents from the Western Cape Municipality who are driving project and portfolio management strongly consider PPM as successful in their company (Bushuyev and Verenysh 2018:104-127).

## 5.4 SECTION C: OPEN ENDED SECTION

This section was purposely meant to broaden the conversation with the audience, inviting respondents to raise any additional queries or worries they felt were pertinent. No matter how meticulous the planning may have been, the section notes that it is possible that another component was overlooked when creating the questionnaire. Respondents are allowed to take into account whatever else they discovered or learnt regarding the study. The respondents were requested to offer any information regarding specific aspects of the study. The identical question/statement and response format was then used.

**REQUEST 1: List 5 critical success factors that are important (in your opinion) which are a must do for effective project portfolio execution.**

**Response:** The respondents were allocated five lines to provide their responses. 95% of respondents replied, while 5% did not complete this section of the questionnaire. The respondents' differing perspectives on this subject prevented the categorising of the responses. Some responses stuck out more than others. The things that get mentioned the most are listed below. The most frequently statements are illustrated in Tables 5.1.

**Table 5.1: Critical success factors for effective project portfolio execution**

NO	PARICIPANTS RESPONSES
1	Strong project management processes lead to a proper project portfolio management.
2	Focus is on doing the right projects at the right time by selecting and managing projects as a portfolio of investments.
3	Building synergies between projects are good portfolio management principles that increase business value and positive results.
4	Aligning projects with the organisation's strategic objectives.
5	Reviewing the portfolio at regular intervals to allow for the filtering of projects and movement of budget.
6	Forward Planning, Financial Management, Procurement Management, Risk management, Governance management, Benefits tracking monitoring, Project control and Monitoring.
7	Effective Communication and Stakeholder management.
8	Effective training, sharing of knowledge, skills and good practices.
9	Robust independent scrutiny of all projects during decision making, project selection, resource allocation, budgetary and prioritisation processes.
10	Have a Project Portfolio Management system/software that enables projects status view, portfolio analysis and project documentation.

There are numerous essential success criteria for project portfolio management, including strategic focus, maturity level, processes, and project management. How do you uncover success factors? Understanding the general goal of a project and the methods required to attain it is the first step in uncovering and recognising success factors. Employees, the system's end users, have highlighted the crucial success aspect in the context of the Western Cape municipality. Since the study was conducted in the Western Cape, the difference may be extremely small, if not the same, as compared to other municipalities in South Africa. This is owing to the fact that all municipalities in South Africa are governed by the same laws, the Municipal Finance Management Act. Municipal employees responsible for project portfolio management have noted, based on the findings of the research, that robust project management processes result in effective project portfolio management. Through choosing and managing projects as a portfolio of investments, the emphasis is on completing the right initiatives at the right time. Building project synergies is a strong portfolio management strategy that boosts corporate value and yields fruitful outcomes, while consistently coordinating projects with the organization's strategic goals. Project status views, portfolio analyses, and project documentation should all be included in a good project portfolio management system or piece of software.

**REQUEST 2: How does project portfolio management practice assist you in your workplace?**

**Response:** The researcher chose and mentioned the 10 most common aspects to illustrate those project portfolio management best practice that contributes positively to the success of a portfolio, programme and project in (Table 5.2). This questionnaire section was completed by 95% of respondents, while 5% did not reply. The answers were not separated into clusters, but only the responses that the researcher found significant are mentioned below. The frequent statements are illustrated in Tables 5.2.

**Table 5.2: Project portfolio management best practice at a Western Cape Municipality**

NO	PARICIPANTS RESPONSES
1	The portfolio management process assists in understanding that there is an alternate approach to running projects.
2	It gives us a bigger picture and reasons for implementing projects because by executing projects and contributing to PPM practice as well achieving the strategic objectives of the organisation.
3	Helps to translate strategic objectives into a prioritised set of interventions.
4	Allows the monitoring of budget spend against planned spend.

5	Projects are easily managed and documented, ensures proper document management/repository.
6	The view of the portfolio displays key linkages and dependencies. Risks are highlighted and dealt with at the correct level. Distinct project management is highlighted. Cash-flow and financial management is dealt with more effectively.
7	They constantly monitor progress and send us constant reminders on risks and benefits tracking.
8	Project Portfolio Management amongst others, assist us in providing senior management with reliable information to support decision-making processes, enabling transparency of programmes and projects and supporting the efficient and effective delivery of strategy and services through projects.
9	Improved project selection process, efficient use of resources and the tool provides more accurate project performance data.
10	Forces good planning at the start of a project, ensures that there is accountability and brings a holistic approach to Portfolio Management.

Different portfolio management drivers in the Western Cape Municipal took into account the success of a project portfolio management as well as the elements that affect this performance in diverse ways. Although there is agreement on the significance of this component for the practise of project portfolio management, there is no uniform treatment or definition of these terms. Without committing to anything, it is important to note that PPM provides a comprehensive project picture and justifications for project implementation. According to this perspective, carrying out projects in accordance with PPM technique helps an organisation achieve its strategic goals. The portfolio view shows important dependencies and linkages. Prior to their occurrence, risks are recognised and appropriately addressed.

**REQUEST 3: List 3 common mistakes that you think are made by organisations in the management of portfolio.**

**Response:** The researcher chose and mentioned the ten most common aspects to illustrate those common mistakes made by organisations on project portfolio management in Table 5.3. This questionnaire section was completed by 95% of respondents, while 5% did not reply. The answers were not separated into clusters, but only the responses that the researcher found significant are mentioned below. The most frequently stated are illustrated in Tables 5.3.

**Table 5.3: Common mistakes made by organisations on project portfolio management**

NO	PARICIPANTS RESPONSES
1	The silos are still thriving and PPM Systems are largely at the individual project level therefore more cross collaboration is required.
2	No collective prioritisation of portfolio, portfolios are not appropriately acknowledged and thus the requisite funding is not assigned correctly.
3	Organisations such as the city are under the mistaken impression that everyone understands what portfolio management entails and this is created by insufficient training that is provided.
4	Projects Managers are not prioritising PPM as a tool of managing their projects instead they use PPM as a tick box exercise.
5	No clear vision/strategy informing for projects/programmes.
6	Priority ratings are done incorrectly, business objectives are ignored, and political agendas are allowed to influence direction.
7	No link between the actual work (non-financial work) on the project and that create a gap in system as and when items are delivered or actual materialised comments need to be updated.
8	Time spent in the management of portfolios is time consuming for PMs running numerous projects; no properly assigned portfolio managers.
9	Too many tick boxes/ approval which can delay projects.
10	PPM software not user friendly, its designed for construction or infrastructure project.

The current study found that the most prevalent mistakes made by organisations in project portfolio management had a negative impact on portfolio success. Based on the number of responses, the researcher can conclude that silos are still alive and that PPM Systems are mostly used at the individual project level, implying that greater cross-collaboration is required. There is no collective portfolio priority, portfolios are not effectively recognised, and hence the necessary financing is not allocated correctly. PPM software is not user-friendly; it is intended for usage in building or infrastructure projects. The existing system is one-size-fits-all.

**REQUEST 4: What are the obstacles to the improvement/maturity of organisational project portfolio management?**

**Response:** The researcher chose and mentioned the ten most common aspects to demonstrate the immediately obstacles that prevent the improvement/maturity of organisational project portfolio management in (Table 5.4). This questionnaire section was completed by 90% of respondents, while 10% did not reply. The answers were not separated into groups, but only the responses that the researcher found significant are mentioned below. The most frequently stated are illustrated in Tables 5.4.

**Table 5.4: Obstacles that prevent the improvement/maturity of organisational project portfolio management.**

NO	PARICIPANT'S RESPONSES
1	Leadership not understanding the full spectrum or value of portfolio management i.e., focused on driving success at the individual level.
2	Input and suggestions from line departments and PMs are not requested or implemented, rather ignored with an attitude of 'this is the way it is and how it will be done'.
3	Aggressive roll-out of PPM with insufficient training provided to project/programme managers.
4	Too much pressure put on project/programme managers to comply with PPM requirements while insufficient project/programme management training.
5	Lack of communication and lack of understanding the benefits of PPM.
6	PPM model and PPM system used creates overburden of reporting mechanisms.
7	The size of the organisation. Competing strategies and misaligned strategies. The drive to mature to quickly not affording enough time for proper growth and maturity.
8	Lack of understanding the benefits of PPM.
9	Reluctancy from project managers to comply. The system gives you what you have put in.
10	Inability to adequately align projects and programmes to the strategic objectives of the organisation and repeating the same mistake year after year.

Poor visibility into project-related data, organisational leadership not understanding the full scope or value of portfolio management, an extreme focus on driving success at single projects, collaboration and communication issues, and suboptimal project selection are among the municipality business problems that prevent the organization's project portfolio management from improving/maturing. These bottlenecks have a negative effect on the success of project portfolio management enhancements.

**REQUEST 5: What do you think about the notion that spending money on the budget is more important than meeting the organisation's strategic goals?**

**Response:** The researcher chose and mentioned the 10 most common aspects to illustrate the perception that spending money on the budget is more important than meeting the organisation's strategic goals. Employees performance is measured on capital expenditure not on how many strategic goals are achieved. Respondents explain that if a project/portfolio manager saves money on procurement services or construction of the project, it is regarded as underspend or over budgeting. There is less focus on the assessment of meeting strategic goals. This questionnaire section was completed by 90% of respondents, while 10% did not

reply. The answers were not separated into clusters, but only the responses that the researcher found significant are mentioned below. The most frequently stated are illustrated in Tables 5.5.

**Table 5.5: Importance of budget expenditure vs meeting the organisation's strategic goals**

NO	PARICIPANT'S RESPONSES
1	Both are important and the one cannot supersede the other. Focusing on spend rates does not always deliver results or impact promised by strategic goals.
2	Organisations should always stick to the strategic goals in order to optimise their development which will yield spending on the budget.
3	It creates the wrong behaviour of spending money and forgetting the issue of good programme and project management.
4	Money/budget spent means service delivery. They want to see that money is spent on service delivery and infrastructure.
5	The push is spending the money, there is a perception that strategic goals will sort themselves out.
6	Wasteful and fruitless expenditure. The organisation's strategic goals should be aligned to project delivery, and benefits tracking should be part of the PM delivery.
7	Not a good measuring tool when so many factors influence a project but this is what the organisation uses to measure performance.
8	It is the wrong way to look at things as spending budget should be aligned to achieving the strategic objectives/goals of the organisation and not just spend for the sake of spending.
9	The organisation penalises you for perceived underspending. They may feel that you did not plan correctly (over-budget) whereas you were able to realise savings along the way.
10	Not true, our core function is to meet strategic goals which in turn results in the organisation's success or failure.

Based on the outcome of the study question/statement According to the researcher, the major success measure for local governments is determined by financial expenditure. If a project/portfolio manager saves money on procurement services or project construction, this is considered underspend or over-budgeted. The focus is more on how much money was spent and less on whether or not strategic goals were met.

**REQUEST 6: How does project portfolio management model at your work project environment help in driving project success?**

**Response:** The researcher selected and cited the 10 most common aspects to illustrate those key driving factors of project portfolio management model that drives project success. This questionnaire section was completed by 92% of respondents, while 8% did not reply. The

answers were not separated into clusters, but only the responses that the researcher found significant are mentioned below. The most frequently stated are illustrated in Tables 5.6.

**Table 5.6: Impact of project portfolio management system in driving projects success**

NO	PARICIPANT'S RESPONSES
1	Improved project selection process and keeps PM focus on objective business goals.
2	The model and tool keeps management, project managers responsible and accountable.
3	PPM enable you do pipeline planning such as long term financial planning; it then makes it easy to align to 10 year capital project/programme with the organisation's strategic goals.
4	It provides tracking and monitoring of individual projects, programme and the portfolio. Monthly project/portfolio progress updates assist with tracking progress and risk identification.
5	Ensures project governance is in place throughout the project life cycle.
6	The projects successfully contribute and speak to project portfolio management objectives and tool allows monitoring of project performance on a regular basis.
7	It guides the project from inception to completion by ensuring lower risks, more effective spending, better communication with stakeholders. Model and tool enable PM to utilise better possible procurement methodologies with a vehicle to deliver.
8	It ensures that projects selected are ready to be implemented as well as providing a better view of the big picture and focus on the objectives of the organisation.
9	Portfolio management is used for selecting the right programmes and projects, thus prioritising the work, and providing the needed project resources in order to achieve public services. Monitoring and review of the portfolio starts at the project level, thus driving the project success in order to achieve the programme and portfolio management.
10	Record keeping and proper reporting leads to clean audit by the Auditor General SA. Monthly finance monitoring, quarterly project reviews to identify value at risk, project governance which include project documentation (scope, cost breakdown, schedule, specification, execution plan) makes it easier to achieve goals.

Traditionally, project success factor research sought to identify methods that project managers and portfolio managers could use to boost the likelihood of successful project results. Initially, the research on project success determinants was focused on characteristics of project processes and experiences. Further investigation discovered that the first research focused on the effectiveness of project management technologies. After evaluating the impact of implementing the project portfolio model in a Western Cape local government, one can conclude that PPM enables Project Managers to ensure pipeline planning, such as long-term financial planning; it then makes it simple to align 10-year capital projects/programs with the organization's strategic goals.



**REQUEST 7: What are the things you like and dislike about project portfolio management?**

**Response:** The researcher chose the ten most prevalent features and cited them to contrast individuals who enjoy and value the PPM model with those who do not, including the model's implementation software. Both liking and disliking have been highlighted equally, and feedback is crucial for determining the model's impact and to utilise the feedback to enhance the areas that end users have identified for improvement. This questionnaire section was completed by 87% of respondents, while 13% did not reply. The answers were not separated into clusters, but only the responses that the researcher found significant are mentioned below. The most frequently stated are illustrated in Tables 5.7.

**Table 5.7: The likes and dislikes about project portfolio management**

NO	PARICIPANT'S RESPONSES
1	I don't like the fact that a portfolio hides poor performing project.
2	The PPM software used is too complicated, very extensive and immense procedures.
3	Dislike the whole model because it comes down to desktop project management that is not close to actual project management and rather delays the execution of a project.
4	PPM is a top-down approach and the fact the that project managers do not directly communicate with portfolio managers. They speak directly with programme managers who then speak to the portfolio managers.
4	More engineering projects focused than ICT, uniformity is key but it is not flexible in my view on the non-built projects.
5	Dislike - The manner in which it is dealt with across the organisation. Lack of prioritisation and identification of key linkages.
6	I like the fact that project portfolio management is aligned with the strategic objectives of the organisations and it puts those strategies into action through programmes and projects.
7	Likes - long term planning, resource alignment, budget alignment, communicating a picture quite easily and keeping key stakeholder/senior managers informed.
8	Historic information easily accessible.
9	Project portfolio management allows for better team synergies across the organisation.
10	It helps to mitigate project risks and analyse benefits that are aligned to strategic objectives.

Portfolio management is also beneficial since it can provide a more comprehensive picture of a company's activities over time, highlighting projects that performed well and those that require improvement. The majority of employees responded that portfolio management can also assist a company in ensuring that projects are prioritised in a uniform manner and that

they fit with company goals. It is worth noting that some respondents reject the system since they believe the entire approach boils down to desktop project management, which is not near to true project management and instead slows project execution. Portfolio management can also assist a corporation in ensuring that projects are prioritised in a consistent manner and that they are aligned with the company's goals.

**REQUEST 8: Elected public representatives or board members influence which projects are to be included in the portfolio? Agree or disagree. Please support your answer**

**Response:** The researcher chose and mentioned the six most common aspects to demonstrate if elected public representatives influence which projects are to be included in the portfolio. Finding the main PPM success elements in a Western Cape Municipality is the goal of the study. The selection of projects for the portfolio and prioritising are mentioned as being highly important aspects of PPM and a top-down approach is discouraged in the PPM literature review. This question is being asked to find such process gaps. This questionnaire section was completed by 87% of respondents, while 13% did not reply. The answers were not separated into clusters, but only the responses that the researcher found significant are mentioned below. The most frequently stated are illustrated in Tables 5.8.

**Table 5.8: Public representatives influence on selection of project to be included in the portfolio**

NO	PARICIPANT'S RESPONSES
1	Politicians approve all delivery plans. Sometimes one wonders what factors, evidence, rationale influenced certain decisions.
2	They are the decision makers in our set-up of local government.
3	Elected officials will push for their projects to be financed and included in the portfolio of projects. That is how the system works.
4	There is a political agenda to influence portfolio choice and performance.
5	Disagree, capital projects (water and sewer) are included based on the need for service delivery and available budget.
6	Councilors have an influence on which projects take priority. Councilors receive direct feedback and pressure from community which they then communicate with senior management, and certain projects/work are then prioritised as such.

Municipal councils are elected every five years in all municipalities. Metropolitan and local municipal councils Political parties pitch manifestos to potential voters in the run-up to local government elections. Political parties utilize service deliverables to demonstrate their ability to govern, which develops influence over capital and operation projects and municipally

approved budgets. The selection of projects for the portfolio is critical, and it can influence whether a portfolio will be successful or not. It is then vital to understand how projects are added to the portfolio. It was then determined that public representatives are the decision-makers in our local government system. It is usual for political officials to lobby for funding for their projects. Researcher can also conclude that majority of capital projects are included on the portfolio depending on service delivery needs and available funding.

**REQUEST 9: What other comments/questions would you like to raise in relation to the study?**

**Response:** The major goal of this question was to pinpoint any parts of the study that the researcher might have overlooked. A study may have important components that many respondents have pointed out that the researcher may have missed. This assists in the development of possible studies or the identification of factors that the researcher typically disregards because scholars may place a great focus on them. It is interesting to note that neither of the respondents offered any suggestions, only remarks such, I found your study to be quite fascinating and important for the enhancement of project managers' involvement in this system. The fact that the question or proposal was not addressed or made is an indication of the respondents' contentment and that they believed nothing had been left out.

**5.5 Chapter summary**

This chapter reviewed, analyzed, interpreted and presented the quantitative data gathered from the questionnaires and noted any uncertainties that were discussed in the qualitative sections' open-ended questions. The pertinent advice for PPM practitioners or those who are thinking about implementing PPM methods in their workplace are made in this section, which is based on the quantitative and qualitative results. The chapter provided an overview of the most recent methods for choosing, processing, prioritising, portfolio balance, performance, training, understanding strategic objectives, and satisfaction with the work. It also discussed how to coordinate projects as a portfolio to add value to an organisation. Clearly, the survey has revealed some previously unknown characteristics of key factors for effective project portfolio management of capital projects for a Western Cape municipality. This was purposefully reduced to allow for focused discussion of the various issues and reference to the theories discussed in the thesis prior to the findings. The illustrations used help to compare the relationships between the variables and there describe the phenomenon in more detail. Critical in the findings is the need for involvement of team members throughout the life cycle of the projects and the need for continuous evaluation and monitoring from the beginning to the end. There is a sense that decisions are made at the top without consulting those at the operation level thus impacting negatively on effectively integrating the system. The summarized version of the findings is provided in the following chapter.

## **CHAPTER SIX**

### **RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.**

#### **6.1 Introduction**

This chapter summarises the research findings addressed and reported in the previous chapter. Initially, an overview of earlier chapters was used to discuss and review some significant components. Furthermore, this chapter focuses on the research findings as well as the author's comments on the findings. The primary goal of this research, as mentioned in Chapter One, was to assess the effectiveness of project, programme, and portfolio management processes in meeting corporate strategic objectives, as well as to identify key success factors in capital project execution. In order to produce recommendations for project portfolio management at a South African Local Government, it is necessary to determine the relationship between the application of various project portfolio management techniques and the perceived effectiveness of project portfolios within a Western Cape municipality capital project portfolio environment.

Chapter six further summarised the quantitative data obtained from the questionnaires and identified any uncertainties that were addressed in the qualitative sections' open-ended questions. This part, which is based on the quantitative and qualitative data, offers useful recommendations for PPM practitioners or those who are considering applying PPM approaches in their workplace. Abubakar, JingChun, Dalibi, Inuwa, and Foyssall (2018:75-84) concurs with the findings and mentions that in the literature that PPM model is seen as a solution to many project management problems. It is a complement to programme and project management. By choosing which projects to execute are the greatest, it drives the business in the proper direction. The chosen projects are handed to portfolio and programme management, and that is the force behind their effective initiation and completion. Doing the right projects, completing the projects collectively, and doing the projects correctly: To succeed over time, project organisations must be excellent at all three.

#### **6.2 Summary of objectives of previous chapters**

**Chapter One:** The study concept, which includes the literature review, problem statement, research objectives, research questions, and research methods, is introduced. The target demographic was discussed along with the sample size, sampling technique, and data collecting. The study also included the study's ethical considerations, and it was determined that there were no ethical issues, and the study was awarded an Ethical Clearance certificate.

**Chapter Two:** provided a detailed overview from existing theoretical literature on planning, strategic objectives, imperatives for strategic objectives, leadership skills for effective execution, portfolio processes, their impact on project execution success.

**Chapter Three:** the theoretical aspects were reviewed and discussed in detail under the following main headings portfolio models, the applications, relationship to project maturity and execution success. The key drivers of project portfolio management in capital projects; the challenges in effectively implementing project portfolio management.

**Chapter Four:** Research design and research technique with an emphasis on their importance in relation to the project objectives and problem description were presented. Discussions included the study's target population, sample size, sample frame, and sampling techniques, as well as the rationale for their selection. This chapter also covered information on data collection, the technique used to acquire data, the tools used to modify and analyse data, and data acquisition.

**Chapter Five:** This chapter provided the analysis, discussion, and presentation of the research findings. The information gathered from each participant in the study was displayed using tables, bar charts, histograms, pie charts, and other types of data visualisation.

**Chapter Six:** Focuses on the summary of chapter five findings. Conclusions and recommendations have been made based on the findings in Chapter Five. The questionnaire is broken up into three sections, A, B, and C.

### **6.3 Summary of findings, conclusions and recommendations**

The previous chapter addressed all components of the questionnaire in detail, and the researcher provides conclusions and recommendations on key aspects of the findings and results discussed in Chapter Five. The researcher's understanding and analysis of obtained data should serve as the foundation for recommendations and conclusions.

#### **6.3.1 SECTION A – BIOGRAPHY**

Section A of the questionnaire addressed the questions on biographical information. Such questions were asked to ensure that the research sample was a valid representation of the population and for statistical considerations. Two of the most crucial questions in this section are about schooling and years of capital project experience. Respondents were asked to specify their level of education, such as the highest degree of qualification they had obtained. Portfolio and project managers must have a particular level of formal education to be

successful in project portfolio management, and they may be required to be certified or affiliated with project management institutes or body of knowledge.

Another critical factor is the number of years of experience in capital projects. Semerádová and Mrázek, (2015:435) fundamental agrees in their writing that the influence of experience and education of project managers has link towards project success. The amount of time spent in the project management domain heavily influenced the respondent's expertise with portfolio management methods. Experience cannot be purchased. The amount of years spent in a given environment contributes to your experience and knowledge, as well as the development of your skills. The number of years the respondents have spent managing and implementing projects is important in ensuring that projects are delivered properly and efficiently (Meirelles, Tereso and Santos, 2019:101-111).

The vast majority of 97% of respondents got a formal university qualification, with only 3% having a Matric qualification, which comprises Diploma/Degree 52%, Honours/Post-Grad 18%, Masters 27%, and PHD 0%. This response demonstrated that the project portfolio management staff members at the organisation are competent in their current responsibilities and have the knowledge, abilities, and managerial insight required to keep and grow the company. Education is a crucial component in developing project portfolio management abilities.

**Conclusion:** According to data acquired, 97% of respondents stated that they have the requisite professional credentials, such as a university diploma or degree, to successfully complete tasks. According to Alexandrova, (2018: 96-105) fundamental project management training improves risk assessment and allows you to see faults and warning indications early. It also improves your planning, organisation, and problem-solving abilities. Jonas (2010:818-83) previous research has indicated that in order to assure project success and efficient monitoring, key participants in project portfolio management should be formally accredited. The project team is familiar with the language, processes, and methods involved in project management, communicating with them may be done efficiently using project jargon.

**Recommendation:** Project or portfolio managers are typically expected to have a Bachelor's degree in project management, business, or computer science, in addition to years of professional experience in a relevant field with escalating seniority. A project management certification could have a number of benefits for you as an individual. The ability to successfully manage as well as deliver various projects is one of these advantages, but it is not the only one. Enhancing your professional profile with ongoing education is also important. In line with the recommendations from the findings Meirelles, Tereso and Santos, (2019:101-111) indicate that project portfolio managers require ongoing training in order to keep up with changes in project management and to find fresh, original ways to execute projects. Among the most

important skills of a project manager are leadership, communication, time management, negotiating, team management, and critical thinking. He or she must also be able to keep up with project management trends and make best use of the available tools. Müller and Turner (2010: 437-448) support this notion that a certain level of competency is required for a project portfolio manager.

### **6.3.2 SECTION B – THE LIKERT SCALE**

The purpose of the Likert - type scale is to give respondents with an ordered scale from which they can select the option that most closely reflects their point of view (Joshi, Kale, Chandel and Pal, 2015: 396-403). By asking respondents how much they agree or disagree with a given issue or statement, it is frequently used to gauge their sentiments. The statements are then placed on a scale from high to low or vice versa to measure the intensity as indicated by the responder. This scale's measurement is based on a five-point scale of strongly agree, agree, neutral, disagree, and strongly disagree. The scale assumes that everything is a duplicate of everything else and that the distances between everything are equal. Respondents are asked to score statements rather than questions, and the data for the statements is frequently derived from the literature study. As a result, the statements aim to assess the credibility of the theoretical assumptions generated throughout the literature review. As a result, each sentence is assigned a number, followed by the respondents' reaction, which depicts the intensity diagrammatically.

A literature review was conducted in order to investigate project portfolio management as a topic. It investigated the links between PPM and organisational strategy, the success variables that influence PPM, the problems that companies face, and the indicators used to assess PPM effectiveness. Literature can use a generic approach, however when implementing PPM principles in an organisation, there are different complexity levels and unique considerations for each organisation that must be made (Jonas, 2010:818-831). A survey method was used to complete the first phase. Before sending the survey out for actual data collecting, it was thoroughly developed and pilot tested. Senior, middle, junior management, portfolio, programme, project managers, practitioners and project administrators were the target audience for the survey, which was addressed to 200 participants; 151 responses were received.

The key conclusions are outlined in five sections: PPM processes, Strategic Alignment, PPM success measurements, PPM organisation maturity and PPM effectiveness. Table 6.1 shows information collected for project portfolio management processes.

**Table 6.1: Project Portfolio Management as a process**

<b>PROJECT PORTFOLIO MANAGEMENT AS A PROCESS</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Stakeholder management activities are not part of our portfolio management process.	1%	14%	12%	44%	29%
Effective portfolio management process does not need 100% projects into the system.	5%	19%	18%	38%	20%
Portfolio processes interface to project processes and corporate strategic planning processes.	25%	56%	12%	4%	3%
Processes are in place to regularly review the portfolio to ensure optimal mix of projects.	21%	57%	13%	8%	1%
We monitor portfolio to improve the effectiveness of our risk management process.	29%	56%	11%	4%	0%
Selection of capital project to be implemented is a top-down approach.	17%	34%	26%	18%	5%
Useful process that can assist senior management to make decisions with a bigger picture in mind.	43%	48%	9%	0%	0%

**Source: Data analysed from study survey (author's own construction)**

**Conclusion:** An organisation needs equally strong processes to manage its project portfolio and improve it over time in order to have an efficient project portfolio management system. Portfolio processes interface to project processes and corporate strategic planning processes and 81% of the respondents are agreeing with this process of managing portfolio of projects. This statement is supported by an overwhelming majority (91%) of respondents who are agreeing that useful process can assist senior management to make decisions with a bigger picture in mind. Even though Gomes and Romão, (2016:489-497) identifies PPM as a good tool to improve project success. However, we can now safely say that effective portfolio management processes do not need 100% projects into the system. The decisive majority seem to understand that all projects must be included in the PPM system in order to execute and deliver right projects.

**Recommendation:** It is highly recommended that portfolio managers monitor portfolio to improve the effectiveness of risk management process and according to Alexandrova,



(2017:73-85) is that all projects in a portfolio management model must be aligned with the corporate strategic objective.

In order to apply uniform standards and practices throughout the organisation, good processes and procedures offer a means of communication. A proper portfolio of assets must be created and managed in accordance with a series of consistent stages called the portfolio management process in order to help a customer reach their predetermined objectives. The existence of PPM procedures is essential to the performance of the portfolio. Another crucial factor is the fact that there is absolutely no assurance that the first PPM process you create and implement will be the best or even the correct one for your company. They are essential because they describe how things are done, provide guidance for improving them, and demonstrate that how something is done affects how successful the results will be. If users pay attention to the right procedures and carry out your actions in the right way, you can create your own route to success.

**Table 6.2: Portfolio Strategic Alignment**

<b>Portfolio Strategic Alignment</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Alignment is crucial as it is the final decision on how the projects to be executed align to strategic objectives.	38%	51%	8%	3%	1%
Projects are aligned to corporate strategic objectives dependent on the resources available.	23%	51%	10%	12%	4%
Aligning the strategic objectives to the portfolio management is the final requirement.	21%	40%	25%	13%	1%
Alignment of projects to strategic objectives is the prerogative of the portfolio or line manager.	17%	41%	13%	21%	8%
We have the responsibility to maximise the contribution to strategic objectives.	30%	60%	9%	1%	0%
We are equally trained to understand the organisations strategic goals and objectives.	13%	27%	27%	29%	4%

**Source: Data analysed from study survey (author's own construction)**

**Conclusion:** The creation of a portfolio serves to support the enterprise's or business function's strategic goals. Strategic alignment must be mentioned while discussing a portfolio. Hence, it does not come as a shock that 89% of respondents fully agree that strategic alignment is crucial as it is the final decision on how the projects to be executed align to strategic objectives. This is supported by the 81% of employees who agree that aligning the strategic objectives to the portfolio management is the final requirement. It is not a choice but a requirement for an effective portfolio management of projects. Meanwhile, 90% of project

portfolio management employees strongly agree that they have a responsibility to maximise the contribution to strategic objectives. Such a response supports the widely accepted definition of a portfolio of projects, which is simply a group of initiatives managed together to achieve strategic goals or benefit from synergies. The creation of a portfolio serves to support the enterprise's or business function's strategic goals. Strategic alignment must be mentioned while discussing a portfolio.

**Recommendation:** The link between process, strategy, and implementation, as well as great alignment between the organisation's strategic goals and those of the portfolio, are critical to portfolio management success. Petro and Gardiner, (2015:1717-1729) Insist that portfolio management should be seen as an essential component of the business planning, benefit realisation, and delivery cycle. Arto and Dietrich, 2007:1-33 are unyielding on the statement that strategic alignment is important to portfolio management; in other words, strategic objectives alignment is a success element in project portfolio management. As a result, it is advised that all employees receive equivalent training in order to comprehend the organisation's strategic goals and objectives. Aligning business units and personnel with the organisation's strategy should be an ongoing activity that requires constant leadership, communication, and monitoring.

**Table 6.3: Project Portfolio Management Practices**

<b>Project Portfolio Management Performance</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Our portfolio aims towards achievement of strategic objectives for the least time, cost and risk.	10%	42%	26%	21%	1%
Our portfolio delivers most of its defined benefits.	11%	66%	21%	1%	1%
Portfolio has resource performance tracking and utilisation.	13%	51%	19%	16%	1%
Project portfolio management has no high failure risks and is generally successful.	2%	26%	32%	35%	5%
In our organisation, the success of a single project is more important than the success of a project portfolio.	4%	20%	33%	45%	9%

**Source: Data analysed from study survey (author's own construction)**

**Conclusion:** The vast majority of responders (77%) agreed that their portfolio achieves the bulk of its stated benefits. Such leads to generalisation that the portfolio management should deliver its benefits and should be goal driven. Petro and Gardiner, (2015:1717-1729) takes it further to say benefits are linked to success of the portfolio which means delivery of capital projects.

With all participants are combined, 54% did not believe that the success of a single project is more essential than the performance of a project portfolio, while just 24% did, and 33% were neutral. As a result of the data, it is possible to conclude that the success of a single project is not more essential than the success of a project portfolio. It comes as no surprise to the researcher that 33% were undecided. Despite the fact that there is a significant distinction between project management and project portfolio management, the line between the two is sometimes blurred. Some project managers continue to prefer the traditional approach to project management. Portfolio management is still viewed as a strategic management tool, as well as a tool for top-level management control and monitoring.

**Recommendation:** It is crucial to track or monitor benefits realisation since it ensures that outcomes and outputs produce benefits. The fulfillment of stakeholder needs is a key component of a project's success, which is determined by the success criteria established at project inception. Benefits management is crucial because it not only consistently outlines the benefits and their effects on the organisation, but also tries to identify the value chain that will supply each benefit's component parts (Petro and Gardiner, 2015:1717-1729).

In contrast to project management, which focuses on effectively leading a single project, portfolio management is the centralised process of selecting and successfully implementing the correct projects for the business inside portfolios. Despite the fact that the distinction between project management and project portfolio management is frequently blurred, one exists. Although both sides are interested with project success, a project manager is only concerned with the success of one project, whereas a project portfolio manager is concerned with the overall success of all completed projects that contribute to the organisation's long-term goals. When implementing project portfolio management, it is necessary that personnel be upskilled and thoroughly trained to grasp the necessity of project portfolio management.

**Table 6.4: PPM Effectiveness**

<b>PPM EFFECTIVENESS</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Portfolio underperforms as a result of risks that could have been anticipated.	10%	42%	26%	21%	1%
Individual project performance are not recognised anymore.	8%	17%	16%	48%	12%
We strive to perform better in order to achieve corporate strategic objectives.	29%	60%	9%	2%	0%
Effective project portfolio management can improve project governance.	47%	49%	0%	4%	0%
In our organisation making use of synergies between projects is highly encouraged.	17%	52%	22%	9%	0%
We all have relevant training/knowledge on how to use project portfolio systems.	12%	42%	22%	20%	5%
Organisation structure is optimised to ensure efficiency of decision making.	10%	42%	18%	27%	3%

**Source: Data analysed from study survey (author's own construction)**

**Conclusion:** Even though project portfolio management (PPM) has grown in importance across a range of business contexts, there is currently little research on the effectiveness of PPM. Actually, neither the definition nor the complete investigation of the elements that contribute to PPM effectiveness, nor the proposal of measuring criteria for PPM effectiveness have been made. Due to a lack of such studies, practitioners continue to use a PPM strategy that has not been evaluated for effectiveness or influence on business outcomes. The aim was to investigate the critical success factors for effective project portfolio management of capital projects. Statements were posed to respondents based on the information acquired from the literature review.

Meanwhile, 96 % of respondents strongly agreed to the assertion that effective project portfolio management can improve project governance. Petro and Gardiner (2015:1717-1729) backs this narrative and alludes that effective management of organizations calls for effective management of its projects. This statement was supported by 69% of employees who agreed that making use of synergies between projects is highly encouraged in an effective portfolio environment. Additionally, 52 % of respondents confirmed that PPM structure is optimised to ensure efficiency in decision making.

**Recommendation:** In this regards, literature review mentioned in previous chapters' asserts that effectiveness of project portfolio management has not been properly defined. Factors that affect PPM effectiveness are still not been carefully investigated, and no measurement standards have been proposed regardless of whether there is no agreed-upon assessment. Against this background the researcher outlines that essential success criteria in project portfolio management are inputs that may directly or indirectly contribute to the portfolio's

performance. In order for the project to be completed on time, numerous components must be coordinated. The goal of this study is to determine how closely crucial success variables and project portfolio performance are related. These aspects are strongly encouraged for an effective project portfolio: risk management, project governance, company strategic alignment, and project synergies. These elements should be incorporated into the operational model guide.

**Table 6.5: Portfolio Balance and Monitoring**

<b>PORTFOLIO BALANCE AND MONITORING</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Portfolio review phase helps in deciding on what projects to kill or what to keep in the portfolio.	29%	52%	16%	3%	1%
In our organisation, the portfolio is balanced based on risk vs. achieving the growth and profit objectives.	9%	39%	36%	16%	0%
Regular budget monitoring is critical for effectively managing the project portfolio.	57%	39%	3%	1%	0%
The practice of stage-gate or other similar frameworks is good for the success of the project portfolio.	35%	46%	14%	1%	4%
Too many weak projects that are approved; not considering resources, value, and priority properly.	14%	22%	39%	22%	3%
There is no need for constant monitoring and evaluation to pre-empt and mitigate risks.	4%	5%	5%	43%	43%

**Source: Data analysed from study survey (author’s own construction)**

**Conclusion:**

The emphasis of programme and project management has been on delivery and execution, completing projects successfully. Portfolio management, on the other hand, focuses on finishing the right projects at the right time by selecting and managing projects as a portfolio of investments. In the literature review, Beringer, et al., (2013: 830-846) points out on the common mistakes or behavior of internal stakeholders in project portfolio management and its impact on success. Portfolio management is frequently done poorly by organisations. Companies take on the incorrect projects or take on too many projects, they are unable to produce strategic results. For these reasons, a successful portfolio model necessitates constant monitoring, project stage gates reviews, and balancing the portfolio. Costantino et al., (2015:1744-1754) outlines that these processes have an impact on the maturity level of organisation portfolio management. It does not come as a surprise that 81% of the respondents have stated that the Portfolio review phase helps in deciding on what projects to kill or what to keep in the portfolio. This is backed by 96% of the respondents who agreed that regular budget monitoring is critical for effectively managing the project portfolio. The research can conclude

by stating that there is a need for constant monitoring and evaluation to pre-empt and mitigate risks.

**Recommendation:**

It is crucial to take the portfolio's level of balance into account. Since portfolio composition is not a decision that is made only once, monitoring and regulating are essential to the process. It is recommended that there should be a consistent cadence to evaluations. It might be decided that a project loses priority and that others take its place. Portfolio management involves balancing the portfolio to ensure that the appropriate projects and programmes are chosen and carried out. Given that portfolio composition is a continuous process, monitoring and regulating are essential. Monitoring and evaluations ought to be carried out in a predictable pattern. A project's priority could be reduced, and other projects could take its place. The process of portfolio planning requires constant evaluations and adjustments as you move through different life cycle stages.

**6.3.3 SECTION C - OPEN ENDED QUESTIONS**

The respondents gave prompt responses to the areas where they could express themselves, though not all of them did so fully. It is worth noting that the majority of the items or difficulties provided were substantially similar and/or related, implying a form of organisational culture. Given that these individuals reported to various managers and supervisors, it simply aided in understanding the corporate culture. The respondents were asked to provide any information, issues, or concerns they had regarding the management systems. There were numerous comments that were worded differently by different respondents, and comparable messages were grouped together. Tables 6.6, 6.7, 6.8, and 6.9 show the most commonly mentioned.

**Request 1: List 5 critical success factors that are important (in your opinion) which are a must do for effective project portfolio execution.**

**Table 6.6: Critical success factors for effective project portfolio execution**

NO	PARICIPANT'S RESPONSES
1	Strong project management processes lead to a proper project portfolio management.
2	Focus is on doing the right projects at the right time by selecting and managing projects as a portfolio of investments.
3	Building synergies between projects are good portfolio management principles that increase business value and positive results.

4	Aligning projects with the organisation's strategic objectives.
5	Reviewing the portfolio at regular intervals to allow for the filtering of projects and movement of budget.
6	Forward Planning, Financial Management, Procurement Management, Risk management, Governance management, Benefits tracking monitoring, Project control and Monitoring.
7	Effective Communication and Stakeholder management.
8	Effective training, sharing of knowledge, skills and good practices.
9	Robust independent scrutiny of all projects during decision making, project selection, resources allocation, budgetary and prioritisation processes.
10	Have a Project Portfolio Management system/software that enables projects status view, portfolio analysis and project documentation.

**Source: Data analysed from study survey (author's own construction)**

**REQUEST 2: How does project portfolio management practice assist you in your workplace?**

**Table 6.7: Project portfolio management best practice at a Western Cape Municipality**

NO	PARICIPANT'S RESPONSES
1	The portfolio management process assists in understanding that there is an alternate approach to running projects.
2	It provides a bigger picture, reasons for implementing projects and contributing to PPM practice as well achieving the strategic objectives of the organisation.
3	Helps to translate strategic objectives into a prioritised set of interventions.
4	Allows the monitoring of budget spend against planned spend.
5	Projects are easily managed and documented, ensures proper document management/repository.
6	Portfolio displays key linkages and dependencies. Risks are highlighted and dealt with at the correct level. Cash-flow and financial management is dealt with more effectively.
7	They constantly monitor progress and constant notify on risks and benefits tracking.
8	PPM providing senior management with reliable information to support decision-making processes, enabling transparency of programmes and projects and supporting the efficient and effective delivery of strategy.
9	Improved project selection process, efficient use of resources and the tool provides more accurate project performance data.
10	Forces good planning at the start of a project, ensures that there is accountability and brings a holistic approach to Portfolio Management.

**Source: Data analysed from study survey (author's own construction)**

**REQUEST 3: List 3 common mistakes that you think are made by organisations in the management of project portfolio.**

**Table 6.8: Common mistakes made by organisations on project portfolio management**

NO	PARICIPANT'S RESPONSES
1	The silos are still thriving and PPM Systems are largely at the individual project level therefore more cross collaboration is required.
2	No collective prioritisation of portfolio, portfolios are not appropriately acknowledged and thus the requisite funding is not assigned correctly.
3	Organisation mistaken impression that everyone understands what portfolio management entails, and this is created by insufficient training.
4	Projects Managers are not prioritising PPM as a tool of managing their projects instead they use PPM as a tick box exercise.
5	No clear vision/strategy informing for projects/programmes.
6	Priority ratings are done incorrectly; business objectives are ignored and political agendas are allowed to influence direction.
7	No link between the actual work (non-financial work) on the project and that creates a gap in system as and when items are delivered or actual materialised comments need to be updated.
8	Time spent in the management of portfolios is time consuming for PM's running numerous projects; no properly assigned portfolio managers.
9	Too many tick boxes/ approval which can delay projects
10	Complicated software and shape software should be what staff need. PPM software not user friendly, it is designed for construction or infrastructure project.

**Source: Data analysed from study survey (author's own construction)**

**REQUEST 4: What are the obstacles that prevent the improvement/maturity of organisational project portfolio management?**

**Table 6.9: Obstacles that prevent the improvement/maturity of organisational project portfolio management**

NO	PARICIPANT'S RESPONSES
1	Leadership not understanding the full spectrum or value of portfolio management i.e., focused on driving success at the individual level.
2	Input and suggestions from line departments and PMs are not requested or implemented, rather ignored with an attitude of 'this is the way it is and how it will be done'.
3	Aggressive roll-out of PPM with insufficient training provided to project/programme managers.
4	Too much pressure put on project/programme managers to comply with PPM requirements while insufficient project/programme management training.



5	Lack of communication and lack of understanding the benefits of PPM.
6	PPM model and PPM system used creates with overburden of reporting mechanisms.
7	The size of the organisation. Competing strategies and misaligned strategies. The drive to mature too quickly not affording enough time for proper growth and maturity.
8	Lack of understanding the benefits of PPM.
9	Reluctance from project managers to comply. The system gives you what you have put in.
10	Inability to adequately align projects and programmes to the strategic objectives of the organisation, and repeating the same mistake year after year.

**REQUEST 5: What do you think about the notion that spending money on the budget is more important than meeting the organisation's strategic goals?**

**Table 6.10: Is spending money on the budget more important than meeting the organisation's strategic goals?**

NO	PARICIPANT'S RESPONSES
1	Both are important and the one cannot supersede the other. Focusing on just spend rates does not always deliver results or impact promised by strategic goals.
2	Organisations should always stick to the strategic goals in order to optimise their development which will yield spending on the budget.
3	It creates the wrong behaviour of spending money and forgetting the issue of good programme and project management.
4	Money/budget spent means service delivery. They want to see that money is spent on service delivery and infrastructure.
5	The push is spending the money, there is a perception that strategic goals will sort themselves out.
6	Wasteful and fruitless expenditure. The organisation's strategic goals should be aligned to project delivery, and benefits tracking should be part of the PM delivery.
7	Not a good measuring tool when so many factors influence a project but this is what the organisation uses to measure performance.
8	It is the wrong way to look at things as spending budget should be aligned to achieving the strategic objectives/goals of the organisation and not just spend for the sake of spending.
9	The organisation penalises the employee for perceived underspending. They may feel that you did not plan correctly (over-budget) whereas you were able to realise savings along the way.
10	Not true, our core function is to meet strategic goals which in turns results in the organisation's success or failure.

**Source: Data analysed from study survey (author's own construction)**

**REQUEST 6: How does project portfolio management model at your work project environment helps in driving project success?**

**Table 6.11: Impact of project portfolio management model in driving projects success**

<b>NO</b>	<b>PARICIPANTS RESPONSES</b>
<b>1</b>	Improved project selection process and keeps PM focus on objective business goals.
<b>2</b>	The model and tool keeps management and project managers responsible and accountable.
<b>3</b>	PPM enable you do pipeline planning such as long-term financial planning, it then makes it easy to align to 10-year capital project/programme with organisation strategic goals.
<b>4</b>	It provides tracking and monitoring of individual projects, programme and the portfolio. Monthly project/portfolio progress updates assist with tracking progress and risk identification.
<b>5</b>	Ensures project governance is in place throughout the project life cycle.
<b>6</b>	The projects successfully contribute and speak to project portfolio management objectives and tool allows monitoring of project performance on a regular basis.
<b>7</b>	It guides the project from inception to completion by ensuring lower risks, more effective spending and better communication with stakeholders. Model and tool enables PM to utilise better possible procurement methodologies with a vehicle to deliver.
<b>8</b>	It ensures that projects selected are ready to be implemented as well as providing a better view of the big picture and focus on the objectives of the organisation.
<b>9</b>	Portfolio management is used for selecting the right programmes and projects, thus prioritising the work, and providing the needed project resources in order to achieve public services. .
<b>10</b>	Record keeping and proper reporting leads to clean audit by the Auditor General SA. Monthly finance monitoring, quarterly project reviews to identify value at risk

**Source: Data analysed from study survey (author's own construction)**

**REQUEST 7: What are the things you like and dislike about project portfolio management?**

**Table 6.12: The likes and dislikes about project portfolio management**

NO	PARICIPANT'S RESPONSES
1	I don't like the fact that a portfolio hides a poor performing project.
2	The PPM software used is too complicated, very extensive and immense procedures.
3	Dislike the whole model because it comes down to desktop project management that is not close to actual project management and rather delays the execution of a project.
4	PPM is the top-down approach and the fact the that project managers do not directly communicate with portfolio managers. They speak directly with programme managers who then speak to the portfolio managers.
4	More engineering projects focused than ICT. Uniformity is key but it is not flexible in my view on the non-built projects.
5	Dislike - The manner in which it is dealt with across the organisation which results in lack of prioritisation and identification of key linkages.
6	I like the fact that project portfolio management is aligned with the strategic objectives of the organisations and it puts those strategies into action through programmes and projects.
7	Likes - long term planning, resource alignment, budget alignment, communicating a picture quite easily and keeping key stakeholder/senior managers informed.
8	Historic information easily accessible.
9	Project portfolio management allows for better team synergies across the organisation.
10	It helps to mitigate project risks and analyse benefits that are aligned to strategic objectives.

**Source: Data analysed from study survey (author's own construction)**

**REQUEST 8: Elected public representatives influence which projects are to be included in the portfolio? Agree or disagree. Please support your answer**

**Table 6.13: Public representatives influence on selection of project to be included in the portfolio**

NO	PARICIPANT'S RESPONSES
1	Politicians approve all delivery plans. Sometimes one wonders what factors, evidence, rationale influenced certain decisions.
2	They are the decision makers in our set-up of local government.
3	Elected officials will push for their projects to be financed and included in the portfolio of projects. That is how the system works.
4	There is a political agenda to influence portfolio choice and performance.
5	Disagree, capital projects (water and sewer) are included based on the need for service delivery and available budget.
6	Councilors have an influence on which projects take priority. Councilors receive direct feedback and pressure from community which they then communicate with senior management, and certain projects/work are then prioritised as such.

**Source: Data analysed from study survey (author's own construction)**

It must be stated that this segment covered topics in greater detail than the research instrument did in the first two parts. This is the most significant section of the study since it offers actual human experience in support of the hypothesis mentioned above. In addition to enabling a deeper understanding of experiences, phenomena, and context, it responds to the ‘how’ and ‘why’ research questions. You can only gauge the effects of effective portfolio management and identify crucial elements for efficient project portfolio management of capital projects via human experience. It is a more flexible method than quantitative research since it allows participants to express themselves while collecting data. The researchers utilised nine (9) sets of open-ended questions in order to obtain more thorough responses.

This component of the questionnaire was completed by 92% of respondents, with 8% opting out. The responses were not clustered, and only the responses that the researcher considered significant are mentioned above. These sets of open-ended questions are crucial to obtain the rich information from project practitioners with years of experience in capital projects. The amount of time spent in the project management environment is heavily influenced by the respondent's experience and maturity in portfolio management operations. Experience cannot be purchased. The number of years spent in a given environment contributes to your experience, knowledge, and ability to enhance your talents. The number of years the respondents have spent managing and implementing projects is important in ensuring that projects are delivered properly and efficiently.

**6.4 The summary of findings and recommendations:**

Strong project management processes lead to an effective project portfolio management.
It takes a lot of effort for PMs managing multiple projects to manage their portfolios, and there are no official portfolio managers in place.
Time spent in the management of portfolios is time consuming for PMs running numerous projects; no properly assigned portfolio managers.
The perception is that the effectiveness of portfolio management is significantly influenced by practices of project information.
The portfolio heavily depends on a balanced corporate strategy.
The success of a project may be easily measured, and project management is simple to understand.
There are insufficient reporting systems, which cause repetition or several requests for the same information in reports. The organisation lacks knowledge of appropriate project reporting practices.
The practices of PPM are not sufficiently understood by executives and it caused by portfolio managers are not sufficiently present at the strategic level.

Resource trimming may result from budget management. There is an excess of resources. There is an organisational maturity failure if top management is unaware of the issue.
PPM provides trustworthy information to top management to support decision-making processes, enabling transparency of programmes and projects, and assisting in the efficient and successful delivery of strategy.
Record keeping and proper reporting leads to clean audit by the Auditor General SA.

**Source: Data analysed from study survey (author's own construction)**

### **Recommendations:**

- For those factors that have a detrimental effect on performance, special training programmes may be required. The organisation would do well to keep the training programmes pertinent to the duties carried out by the practitioners considering regular training is a motivator for both managers and their staff members. Nothing that can improve performance and empower the subordinates should be left undone. An empowered staff is a motivated and productive workforce.
- More consideration should be given towards portfolio balancing considering service delivery appears to dictate which projects will be carried out. It is critical to pay close attention to the project selection criteria.
- Building synergies between projects are good portfolio management principles that increase business value and positive results.
- Effective project portfolio management results from strong project management methods. To have an effective portfolio management, a business should give project management systems, processes, and standard operating procedures equal consideration.
- One of the most critical choices that will determine the performance of a portfolio is the selection criterion. There is a higher likelihood that the portfolio will fail if projects are not selected based on the right selection criteria. Therefore, for the portfolio to be successful, acceptable and strategically sound projects must be chosen. Making practitioners aware of this mistake will help to dispel the myth that selecting the success criteria is crucial.
- Addressing the lack of understanding about PPM procedures is the main tendency in the recommendations. The management team needs to learn more about PPM and the supporting forces that PPM procedures depend on. This is an essential component in assisting the portfolio managers with the strategy's implementation. The requirement to update and inform management at all levels of the project's information is the second major trend.

## 6.5 Conclusion

The primary objective of this study was identifying critical factors for effective project portfolio management of capital projects for a Western Cape municipality. A question was presented to the experienced project practitioners about how successful they believe their organisation's project portfolio management concept and practice are. The success of the project portfolio management model makes it easy to identify important success drivers, identify the correct processes, and identify gaps in the portfolio maturity model. It is important to emphasise that the results obtained show that survey participants are well educated and came from diverse departments, diverse age group with a vast experience in project portfolio management field. An overwhelming majority of respondents (81%) perceive portfolio management as mostly and very successful, while 16% perceive it as slightly successful and only 3% indicate it as unsuccessful.

As indicated previously, these objectives are descendants of such primary objective, assisting/leading the study to be conducted, these are:

- ❖ To identify the key drivers in portfolio management in effective capital projects
- ❖ To examine the role and impact of portfolio managers in driving the portfolio management towards achieving organisation strategic objectives.
- ❖ To determine the maturity of project portfolio management method applied.
- ❖ To assess obstacles that prevent the improvement of an organisational project.
- ❖ To determine the variables that are correlated with the efficiency of managing strategic intention through project portfolios

Given that the Western Cape municipality's adoption of the project portfolio management model has been regarded successful, the research topic's follow-up question is, what are these key drivers for effective capital project portfolio management?

The significant success factors of project portfolio management identified in the Western Cape municipality in South Africa are summarised:

- ❖ Aligning projects with the organisation's strategic objectives.
- ❖ Effective communication and stakeholder management.
- ❖ Strong project management processes create effective project portfolio management.
- ❖ Portfolio structure (portfolio definition and visualisation).
- ❖ Competence (training materials and training delivery).
- ❖ Portfolio processes (input > task > output).
- ❖ Maturity assessment (acceptance, readiness, implementation scope).

- ❖ The emphasis is on completing the appropriate projects at the appropriate time by selecting and managing projects as a portfolio of investments.
- ❖ Building synergies between projects are good portfolio management principles that increase business value and positive results.
- ❖ Rebalancing the portfolio at regular intervals to allow for the filtering of projects and movement of budget.
- ❖ Effective training, sharing of knowledge, skills and good practices
- ❖ Robust independent scrutiny of all projects during decision making, project selection, resources allocation, budgetary and prioritisation processes.
- ❖ Have a project portfolio management system/software that enables projects status view, portfolio analysis and project documentation.

This study adds to the body of knowledge regarding project portfolio management, specifically for municipal governments. The findings of this study emphasise the need of senior management supporting project portfolio management in order to achieve organisational strategic success and to identify the critical aspects of successful project portfolio management. PPM techniques and managerial styles must be carefully suited to the qualities and complexities of the organisation, just as the strategy must be tailored to the firm's characteristics. Managers must learn more about PPM and the supporting aspects required for PPM activities.

As I conclude, it is worth mentioning that the effectiveness of best practices depends not only on the tools or technique employed, but also on the commitment and support of management. The best practice of PPM, as well as the overall methodology, must be supported and driven by portfolio managers who hold a powerful position within the organisation. If top management supports and implements the procedures, the organisation's goals are more likely to be met. According to top and portfolio management, every business unit and functional area must be in alignment with the policies, processes, and practices that carry out the organisation's strategy and finally realise its goals.

## **6.6 Limitations of the study**

People are still cautious to participate in face-to-face interactions as a result of the COVID 19 outbreak. Participants are reluctant to touch anything from other people because of how the terrible virus spread, putting their health at risk. This prompted the survey to be carried out online. The survey method was the most appropriate one for this study given the challenging circumstances. Internet surveys have many advantages for researchers, but it is also vital to be aware of the disadvantages. For example, the quality of Web surveys may differ from other

antiquated methods of data collection, and participants had to use their own data bundles or internet network connections. The final survey's goal was to encourage plenty of project portfolio managers to participate. They were contacted through phone and email and requested to take part. In the appendix, you can see a copy of the email that was sent to the organisations together with the cover letter and a link to the questionnaire. Survey Monkey, which was the most appropriate programme for this study, was used to produce the survey. One of Survey Monkey's flaws was the lack of a double matrix rating scale, which could have helped respondents complete the lengthy questions. Considering a case study technique was used, it might be difficult to generalise the findings to municipalities in other provinces. a case study technique was used; it might be difficult to generalise the findings to municipalities in other provinces.

### **6.7 Recommendations for future studies**

This study primarily intended to describe the phenomenon / situation in municipality project portfolio management systems, the description of the situation therefore added to both depth and breadth in the understanding of the problems. The increase in community service delivery strikes is a result of failed delivery of these projects, and the description of the environment therefore attracts the following recommendations;

1. There is need for extensive training in project execution process – more research should identify specific areas of concern
2. There appears to be a “working in silos” approach – research on how to integrate the projects and focus on unified delivery may be necessary
3. Studies need to be conducted to understand why there is such “operational gap” between the executors and the planners.
4. There is the need to study the presence / effectiveness of continuous monitoring and evaluation of the stakeholder management

South Africa is behind in the delivery of service and capital projects. This suggests that in order for South Africa to keep up with the most recent trends adopted by wealthy nations, the project portfolio management sector will experience rapid growth. Project managers and portfolio managers appear to have similar duties and responsibilities. Branch departmental managers and portfolio managers are mixed up. The majority of organisations do not have a designated portfolio manager; instead, an experienced project manager is given the role at random. There are still many additional practices and important elements that need to be examined in future studies. Additional research could concentrate on the specific duties of project managers, department managers, and portfolio managers in the context of municipal government.



## REFERENCES

- Abubakar, S.G., Feng, J., Dalibi, S.G., Li, X., Zheng, C. & Cao, L. 2018. Project Portfolio Management Strategies in Housing Estate Development Organizations in Nigeria's Built Environment. *Journal of Risk Analysis and Crisis Response*, 8(2):63.
- Abubakar, S.G., JingChun, F., Dalibi, S.G., Inuwa, L.U. and Foysall, M.M., 2018. Project Portfolio Management Practices in Nigeria's Construction Industry. *Business, Management and Economics Research*, 4(6), pp.75-84.
- Akaranga, S.I. and Makau, B.K. 2016. Ethical considerations and their applications to research: A case of the University of Nairobi. *Journal of Educational Policy and Entrepreneurial Research*, 3(12):1-9.
- Alac, P. and Culík, M. 2017. Multi-Criteria Decision-Making Model for the Material Flow of Resonant Wood Production. *Sustainability*, 9(2):1-11.
- Alatalo, A. 2012. Communication Strategy in Projects - High Technology Sector Viewpoint. Master's degree in Entrepreneurship and Business Competence. HAMK University of Applied Sciences, Finland.
- Alatalo, A. 2012. *Communication Strategy in Projects - High Technology Sector Viewpoint*. Master's degree in Entrepreneurship and Business Competence. HAMK: University of Applied Sciences.
- Petro, Y. and Gardiner, P., 2015. An investigation of the influence of organizational design on project portfolio success, effectiveness and business efficiency for project-based organizations. *International Journal of Project Management*, 33(8), pp.1717-1729.
- Alexandrova, M. 2017. Project portfolio management processes: survey evidence from 164 Bulgarian project-oriented organizations. *Годишник на УНСС*, 1(1):73-85.
- Alexandrova, M., 2018. A principal component analysis of project portfolio management practices. *Ekonomicko-manazerske spektrum*, 12(2):96-105.
- Ali, B.J. & Anwar, G. 2021. Project Management and Dynamic Work Environments: The relationship between Leadership in Dynamic Work Environments in Kurdistan. *International Journal of Civil, Mechanical and Energy Science*, 7(3):10-18.
- Almalki, S. 2016. Integrating Quantitative and Qualitative Data in Mixed Methods Research- Challenges and Benefits. *Journal of education and learning*, 5(3):288-296.
- Alsudiri, T., Al-Karaghoul, W. & Eldabi, T. 2013. Alignment of large project management process to business strategy: A review and conceptual framework. *Journal of Enterprise Information Management*, 26(5): 596-615.
- Amanchukwu, R.N., Stanley, G.J. and Ololube, N.P. 2015. A review of leadership theories, principles and styles and their relevance to educational management. *Management*, 5(1):6-14.
- Andreu, L., Sarto, J.L. and Gimeno, L.V. 2009. Evaluating the Style Portfolio Performance of Spanish Equity Pension Plans. *Spanish Journal of Finance and Accounting*, 38(144):545-578.

- António, A. and Madalena, A. 2009. Project Portfolio Management Phases: A Technique for Strategy Alignment. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*: 3.
- APM ST SIG. 2018. Systems Thinking for Portfolio, Programme and Project Managers. *International Council for Systems Engineering (INCOSE)*, 1(0):1-11.
- Archibald, R.D. and Archibald, S.C. 2016. *Leading and Managing Innovation: What Every Executive Team Must Know about Project, Program, and Portfolio Management*. 2<sup>nd</sup> ed. Boca Raton: CRC University of Applied Sciences.
- Artto and Dietrich. 2004. Strategic Business Management Through Multiple Projects, in *The Wiley Guide to Project, Program & Portfolio Management*. USA: John Wiley & Sons, Inc: 1-33.
- Artto, K.A., Dietrich, P.H., 2007. Strategic business management through multiple projects. In: Morris, P.W.G., Pinto, J.K. (Eds.), *The Wiley Guide to Project Program & Portfolio Management*. John Wiley & Sons, Hoboken, NJ, pp. 1–33
- Asgarhalvaei, A. 2021. Theoretical Framework of Modeling in Strategic Management. *Scientific Journal of System Management Studies*, 2(3):45-69.
- Association for Project Management (APM). 2011b. *Directing change: A guide to governance of project management*. Buckinghamshire: Association for Project Management.
- Başkarada, S. 2014. Qualitative case studies guidelines. *The Qualitative Report*, 19(40):1-25.
- Bathallath, S., Smedberg, Å. and Kjellin, H. 2016. Managing project interdependencies in IT/IS project portfolios: A review of managerial issues. *International journal of information systems and project management*, 4(1):67-82.
- Beasley, J.E. 2013. Portfolio optimisation: models and solution approaches. In: *Theory Driven by Influential Applications*. Catonsville, USA: Informa.
- Beese, J., Haki, K., Schilling, R., Kraus, M., Aier, S., Winter, R. and (Outgoing Editor), 2022. Strategic alignment of enterprise architecture management—how portfolios of control mechanisms track a decade of enterprise transformation at Commerzbank. *European Journal of Information Systems*: 1-14.
- Bell, J. 2014. *Doing Your Research Project: A Guide for First-Time Researchers*. London: McGraw-Hill Education.
- Beringer, C., Jonas, D. and Kock, A. 2013. Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management*, 31(6):830-846.
- Bessant, J., Von Stamm, B., Moeslein, K.M. and Neyer, A.O.K. 2011. Management in Nigeria's Built Environment. Backing outsiders: selection strategies. *International Journal of Economics, Commerce & for Discontinuous Innovation*, VI(3).
- Bhaskar, S.J. 2016. Benefits in Implementation of PPM Technique in Manufacturing Industry. *International Journal of Scientific Research in Science, Engineering and Technology*, 1(2):446-449.
- Birgisson, I.S. 2012. Project Portfolio Management in New Product Development Organizations Application of accepted PPM theories in practice. MSc Thesis. Sweden: Chalmers University of Technology: 1-65.

- Blichfeldt, B.S. and Eskerod, P. 2008. Project portfolio management – there's more to it than what management enacts. *International Journal of Project Management*, 26(4):357-365.
- Blomquist, T. and Müller, R., 2006. Practices, roles, and responsibilities of middle managers in program and portfolio management. *Project Management Journal*, 37(1):52-66.
- Boonlua, S., Gan, C., Palasak, S. and Chuwiruch, N. 2022. Strategic Agility Determinants: Achieving Organisational Goals in the E-Commerce Business, Thailand. *Journal of Algebraic Statistics*, 13(3):4747-4761.
- Botma Y., Greeff, M., Mulaudzi, M. and Wright, S. 2010. *Research in Health Sciences*. Cape Town: Heinemann.
- Bourne, L. 2014b. The six functions of governance. *Portfolio Management World Journal*, 3(11):26-41.
- Brady, T. and Davies, A. 2014. Managing structural and dynamic complexity: A tale of two projects. *Project Management Journal*, 45(4):21-38.
- Brannen, J. 2017. *Combining qualitative and quantitative approaches: An overview. Mixing methods: Qualitative and quantitative research*. London: Routledge: 3-37.
- Braun, V. and Clarke, V. 2021. One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3):328-352.
- Brayda, W.C. and Boyce, T.D. 2014. So you really want to interview me? Navigating “sensitive” qualitative research interviewing. *International Journal of Qualitative Methods*, 13(1):318-334.
- Brook, J.W. and Pagnanelli, F. 2014. Integrating sustainability into innovation project portfolio management: A strategic perspective. *Journal of Engineering and Technology Management*, 3(4):46-62.
- Bryman, A. 2012. *Social research methods*. Oxford: Oxford University Press.
- Brynard, P. and Hanekom, S.X. 2006. *Introduction to research in management-related fields*. Pretoria, SA: Van Schaik.
- Brzeszczyński, J. and McIntosh, G., 2014. Performance of portfolios composed of British SRI stocks. *Journal of Business Ethics*, 120(3):335-362.
- Bucero, A. and Englund, R.L. 2015. *Project sponsorship: Achieving management commitment for project success*. Newtown Square, Pennsylvania: Project Management Institute.
- Buglione, L. 2009, November. Leveraging People-Related Maturity Issues for Achieving Higher Maturity and Capability Levels. In *International Workshop on Software Measurement*: 35-4. Springer, Berlin, Heidelberg.
- Burger, M. 2013. Project management in the built environment: the need for industry specific knowledge. Doctoral dissertation, University of the Free State, Free State.
- Burns, N. and Grove, S.K. 2005. *Pflegeforschung verstehen und anwenden*. Munich, German: Elsevier, Urban & Fischer.

- Bushuyev, S. and Verenych, O. 2018. Organisational maturity and project: Program and portfolio success. In *Developing Organizational Maturity for Effective Project Management*: 104-127. IGI Global.
- Buys, A.J. and Stander, M.J. 2010. Linking projects to business strategy through project portfolio management. *South African Journal of Industrial Engineering*, 21(1):59-68.
- Calciolari, S., González Ortiz, L., Goodwin, N. and Stein, V. 2022. Validation of a conceptual framework aimed to standardize and compare care integration initiatives: the project INTEGRATE framework. *Journal of Interprofessional Care*, 36(1):152-160.
- Carifio, J. and Perla, R. 2008. Resolving the 50-year debate around using and misusing Likert scales. *Medical Education*, 42(12):1150-1152.
- Carini, R.M., Hayek, J.C., Kuh, G.D., Kennedy, J.M. and Ouimet, J.A. 2003. College student responses to web and paper surveys: Does mode matter? *Research in Higher Education*, 44(1):1-19.
- Castro, M.S., Bahli, B., Farias, L. and Filho, J.R. 2019. A contemporary vision of project success criteria. *Brazilian Journal of Operations & Production Management*, 16(1):66-77.
- City of Cape Town. 20217. *Project Portfolio Management, Project Programme Management and Project Management Operational Model and Roadmap*  
<http://cityweb.capetown.gov.za/en/SPU/Documents/Project%20Portfolio%20Management%20Operating%20Model.pdf> [ 05 May 2022]
- Clark, V.P. and Badiie, M. 2010. *Research questions in mixed methods research*. SAGE handbook of mixed methods in social & behavioral research: London: SAGE Publications: 275-338.
- Clegg, S., Killen, C.P., Biesenthal, C. and Sankaran, S. 2018. Practices, projects and portfolios: Current research trends and new directions. *International Journal of Project Management*, 36(5):762-772.
- Constantiou, I.D. and Kallinikos, J. 2015. New games, new rules: big data and the changing context of strategy. *Journal of Information Technology*, 30(1):44-57.
- Cooke Davies, T. 2002. The “real” success factors on projects. *International Journal of Project Management*, 20(3):185-190.
- Cooper, R. and Edgett, S. 2010. Developing a product innovation and technology strategy for your business. *IEEE Engineering Management Review*, 38(4):101-109.
- Cooper, R.G., Sommer, A.F. 2016b. The Agile–Stage-Gate hybrid model: a promising new approach and a new research opportunity. *Journal of Product Innovation Management*, 33(5):513-526.
- Costantino, F., Di Gravio, G. and Nonino, F. 2015. Project selection in project portfolio management: An artificial neural network model based on critical success factors. *International Journal of Project Management*, 33(8):1744-1754.
- Creswell, J.W. 2008. *The selection of a research design*. Research Design-Qualitative, and Mixed Method Approaches. London: Sage publications 3-22.
- Creswell, J.W. and Poth, C.N. 2016. *Qualitative inquiry and research design: Choosing among five approaches*. London: Sage publications.

- Creswell, J.W. 2013. *Steps in conducting a scholarly mixed methods study*. London: Sage publications.
- Cresswell, T., 2012. Mobilities II: still. *Progress in human geography*, 36(5), pp.645-653.
- Cummins, R.A. and Gullone, E. 2000. 'Why we should not use 5Vpoint Likert scales: The case for subjective quality of life measurement'. Second International Conference on Quality of Life in Cities.
- Daft, R., Murphy, J. and Willmott, H. 2010. *Organization Theory and Design*. USA: South-Western Cengage Learning.
- Daft, R.L. 2015. *The leadership experience*. 6<sup>th</sup> ed. United States of America: Cengage.
- Danesh, D., Ryan, M.J. and Abbasi, A. 2018. Multi-criteria decision-making methods for project portfolio management: a literature review. *International Journal Management and Decision Making*, 17(1):75-94.
- Daniel, J. 2010. Empowering project portfolio managers: How management involvement impacts project portfolio management performance. *International Journal of Project Management*, 28(8):818-831.
- Davis, K. 2014. Different stakeholder groups and their perceptions of project success. *International Journal of Project Management*, 32(2):189-201.
- De Mare, G., Granata, M.F. and Nesticò, A. 2015. Weak and strong compensation for the prioritization of public investments: multidimensional analysis for pools. *Sustainability*, 7(12):16022-16038.
- Dillman, D.A. and Bowker, D.K. 2001. The web questionnaire challenge to survey methodologists. *Online social sciences*, 7:53-71.
- Dixit, S., 2021. Performance Management Practices: A Decisive Approach to Improve Employee Productivity. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(3), pp.3318-3324.
- Doyle, L., McCabe, C., Keogh, B., Brady, A. and McCann, M., 2020. An overview of the qualitative descriptive design within nursing research. *Journal of Research in Nursing*, 25(5), pp.443-455.
- Drachsler, H. and Greller, W. 2016. April. Privacy and analytics: it's a DELICATE issue a checklist for trusted learning analytics. In *Proceedings of the sixth international conference on learning analytics & knowledge*: 89-98.
- Dutta, A., Lee, H. and Yasai-Ardekani, M. 2014. Digital systems and competitive responsiveness: The dynamics of IT business value. *Information & Management*, 51(6):762-773.
- Ebrahim, N.A., Ahmed, S. and Taha, Z. 2009. Modified stage-gate: A conceptual model of virtual product development process. *African Journal of Marketing Management*, 1(9):211-219.
- Eljayar, A. and Busch, J.S. 2021. Agile-Stage-Gate Approach: Exploratory Research on the Structure, Roles, and Responsibilities. *Athens Journal of Technology and Engineering*, 8(1):39-90.

- Enoch, C.N. 2010. Project portfolio management: A model for improved decision-making. Thesis submitted in accordance with the requirements for the degree of Doctor of Philosophy. Computer Science Department: University of South Africa.
- Enoch, C.N. 2013. Project Portfolio Management: A Model for Improved Decision Making. Pretoria: University of South Africa. <http://uir.unisa.ac.za/handle/10500/13308>.
- Enoch, C.N. and Labuschagne, L. 2014. Towards a theoretical foundation for project portfolio management. Paper presented at Project Management Institute Research and Education Conference, Phoenix, AZ. Newtown Square, PA: Project Management Institute.
- Evans, J.R. and Mathur, A. 2005. "The value of online surveys", *Internet Research*, Emerald Group Publishing Limited. 15(2):195-219. <https://doi.org/10.1108/10662240510590360>
- Fetters, M.D. and Freshwater, D., 2015. Publishing a methodological mixed methods research article. *Journal of Mixed Methods Research*, 9(3), pp.203-213.
- Flint, E. 2019. Quantitative topics in portfolio and risk management. Thesis Submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy. Department of Actuarial Science, and Department of Mathematics and Applied Mathematics: University of Pretoria, Pretoria.
- Flint, E. and du Plooy, S. 2018. Extending Risk Budgeting for Market Regimes and Quantile Factor Models. *Journal of Investment Strategies*, 7(4):51-74.
- Franco, E.F., Hirama, K. and Carvalho, M.M. 2018. Applying system dynamics approach in software and information system projects: A mapping study. *Information and Software Technology*, 9(3):58-73.
- Fraser, I. 2020. Success Factors and Summary, Series on Boosting Organizational Value Through Smarter Portfolio Management. *PM World Journal*, 11(6):12-22.
- Gardner, H.J. and Martin, M.A. 2007. Analyzing Ordinal scales in studies of virtual environments: Likert or lump it! *Presence: Teleoperators and Virtual Environments*, 16(4):439-446.
- Gomber, P., Kauffman, R.J., Parker, C. and Weber, B.W. 2018. On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of Management Information Systems*, 35(1):220-265.
- Gomes, J. and Romão, M. 2016. Improving project success: A case study using benefits and project management. *Procedia Computer Science*, 1(1):489-497.
- Guo, N. and Xiao, S.R. 2014. Review of the development of project portfolio management. *Advanced Materials Research*, 838: 3131-3134. Trans Tech Publications Ltd.
- Gutiérrez, E. and Magnusson, M. 2014. Dealing with legitimacy: A key challenge for project portfolio management decision makers. *International Journal of Project Management*, 32(1):30-39.
- Hammond, D. 2010. *The science of synthesis: Exploring the social implications of general systems theory*. University Press of Colorado: 503.
- Harrison, F. and Lock, D. 2017. *Advanced project management: a structured approach*. Routledge: New York.

- Heising, W. 2012. The integration of ideation and project portfolio management - A key factor for sustainable success. *International Journal of Project Management*, 30(5):582-595.
- Heravi, A., Coffey, V. and Trigunarsyah, B. 2015. Evaluating the level of stakeholder involvement during the project planning processes of building projects. *International Journal of Project Management*, 33(5):985-997.
- Hopkinson, M. 2017. The project risk maturity model: Measuring and improving risk management capability. USA: Routledge.
- Howsawi, E., Eager, D., Bagia, R. and Niebecker, K. 2014. Success Strategies for Project Management During National Crises: Insights from The British Aviation Industry During World War Two. *International Review of Management and Business Research*, 3(1):533-556.
- Hyväri, I. 2014. Project portfolio management in a company strategy implementation: A case study. *Procedia-Social and Behavioral Sciences*, 11(9):229-236.
- Jonas, D. 2010. Empowering project portfolio managers: How management involvement impacts project portfolio management performance. *International Journal of Project Management*, 28(8):818-831.
- Jonas, D., Kock, A. and Gemünden, H.G. 2013. Predicting project portfolio success by measuring management quality: A longitudinal study. *IEEE Transactions on Engineering Management*, 60(2):215-226.
- Jordan, A. 2015. Improving performance, is better portfolio planning and communication the key? CA Technologies, Inc.
- Joshi, A., Kale, S., Chandel, S. and Pal, D. (2015) Likert Scale: Explored and Explained. *British Journal of Applied Science & Technology*, 7(5):396-403.
- Joslin, R. 2015. Addressing portfolio information issues through the use of business social networks, stars, and gatekeepers. In Levin, G. and Wyzalek., J. (eds.) *Portfolio management: a strategic approach*.
- Jowah, L.E. 2013. Followership: The Forgotten Kingmaker for Effective Leadership. *Journal of US-China Public Administration*, 10(7):708-719.
- Jowah, L.E. 2014. The impact of leadership styles on effective project execution. *Sky Journal of Business Administration and Management*, 4(3):10-17.
- Jowah, L.E. and Laphi, L. 2015. Project Leadership Competencies: The Case of Project Leadership in Construction Project. *Entrepreneurship and Innovation Management Journal*, 3(1):15-39.
- Jowah, L.E. and Laphi, L. 2015. Project leadership competencies: the case of project leadership in construction project. *Entrepreneurship and Innovation Management Journal*, 3(1):1-31.
- Kaiser, M.G., El Arbi, F. and Ahlemann, F. 2015. Successful project portfolio management beyond project selection techniques: Understanding the role of structural alignment. *International Journal of Project Management*, 33(1):126-139.
- Kaplan, R.S. and Norton, D.P. 2000. Having trouble with your strategy? Then map it. *Focusing Your Organization on Strategy-with the Balanced Scorecard*, 49(5):167-176.
- Kempf, A., Olaf, K. and Sven, S. 2015. Portfolio Optimization using Forward-looking

Information. *Review of Finance*, 19(1):467-490.

Kendrick, T. 2015. *Identifying and managing project risk: essential tools for failure-proofing your project*. New York, USA: Amacom: 10-14.

Kerzner, H. 2019. *Using the project management maturity model: strategic planning for project management*. 3<sup>rd</sup> ed. Hoboken, New Jersey: Wiley.

Kerzner, H. 2019. *Using the Project Management Maturity Model: Strategic Planning for Project Management*. 3<sup>rd</sup> ed. John Wiley & Sons. Inc., Hoboken, New Jersey.

Kerzner, H.R. and Kerzner, H. 2017. *Project Management: A systems approach to planning, scheduling, and controlling*. 12<sup>th</sup> ed. New York, USA: John Wiley & Sons.

Kester, L., Griffin, A., Hultink, E.J. and Lauche, K. 2011. Exploring portfolio decision-making processes. *Journal of Product Innovation Management*, 28(5):641-661.

Kiisel, T. 2010. *How to align corporate strategy with project execution white paper*. USA: At Task, Inc.

Killen, C.P and Hunt, R.A. 2013. Robust project portfolio management: Capability evolution and maturity. *International Journal of Managing Projects in Business*, 6(1):131-151.

Killen, C.P. and Kleinschmidt, E.J. 2008. Project portfolio management for product innovation. *International Journal of Quality & Reliability Management*, 25(1):24-38.

Killen, C.P., Jugdev, K., Drouin, N. and Petit, Y. 2012. Advancing project and portfolio management research: Applying strategic management theories. *International Journal of Project Management*, 30(5):525-538.

Kissi, J., Dainty, A. and Tuuli, M. 2013. Examining the role of transformational leadership of portfolio managers in project performance. *International Journal of Project Management*, 31(4):485-497.

Ko, J.H. and Kim, D. 2019. The effects of maturity of project portfolio management and business alignment on PMO efficiency. *Sustainability*, 11(1):238.

Koners, U. and Goffin, K. 2007. Learning from Postproject reviews: A cross case analysis. *Journal of Product Innovation Management*, 24(3):242-258.

Kononenko, I.V. and Kpodjedo, M.F.K. 2019. Processes for managing an organization's portfolio of projects, in: Proceedings of the XV International Scientific and Practical Conference, Project Management: Status and Prospects, NUS, Mykolayiv: 34-35.

Kopmann, J., Kock, A., Killen, C.P. and Gemunden, H.G. 2014. Business case control in project Portfolios-An empirical investigation of performance consequences and moderating effects. *IEEE Transactions on Engineering Management*, 62(4):529-543.

Kopmann, J., Kock, A., Killen, C.P. and Gemunden, H.G. 2017. The role of project portfolio management in fostering both deliberate and emergent strategy. *International Journal of Project Management*, 35(4):557-570.

Korhonen, T., Laine, T. and Martinsuo, M. 2014. Management control of project portfolio uncertainty: A managerial role perspective. *Project Management Journal*, 45(1):21-37.

Kotler, P., Berger, R. and Bickhoff, N. 2010. *The Quintessence of Strategic Management*. Springer-Verlag: Berlin Heidelberg.



- Krahn, J. (July 2006). Effective Project Leadership: A Combination of Project Manager Skills and Competencies in Context, PMI Research Conference Proceedings.
- Krosnick, J.A. 2018. Questionnaire design. In *The Palgrave handbook of survey research*: 439-455. London: Palgrave Macmillan, Cha.
- Laurent, U. and Ernest, S. 2021. Community Involvement in Planning and the Success of Rural Development Projects in Rwanda. *Journal of Entrepreneurship & Project Management*, 5(2).
- Levin, G. and Wyzalek, J. 2014. *Portfolio Management - A Strategic Approach*. Boca Raton: CRC Press. Auerbach Publications.
- Levin, G. and Wyzalek, J. 2014. *Portfolio Management - A Strategic Approach*. Boca Raton: CRC Press. Auerbach Publications.
- Levine, H.A. 2005. *Project Portfolio Management: A Practical Guide to Selecting Projects, Managing Portfolios and Maximizing Benefits*, Jossey-Bass: 1.
- Lindner, F. and Wald, A. 2011. Success factors of knowledge management in temporary organizations. *International Journal of Project Management*, 29(7):877-888.
- Lockwood, M. 2010. Good governance for terrestrial protected areas: A framework, principles and performance outcomes. *Journal of Environmental Management*, 91(3):754-766.
- Lychkina, N. 2022. Modelling of Developing Socio-economic Systems Using Multiparadigm Simulation Modelling: Advancing Towards Complexity Theory and Synergetics. In *World Organization of Systems and Cybernetics Congress* (pp. 191-204). Springer, Cham.
- Marnewick, C. 2015. Portfolio management success. In: Levin, G. and Wyzalek, J.P. (eds), *Portfolio Management: A Strategic Approach*. London: CRC Press
- Martinsuo, M. 2012. Project portfolio management in practice and in context. *International Journal of Project Management*, 3(1):1-13.
- Martinsuo, M. 2013. Project portfolio management in practice and in context. *International Journal of Project Management*, 31(6):794-803.
- Mason, J., 2002. Linking qualitative and quantitative data analysis. In *Analyzing qualitative data* (pp. 103-124). Routledge.
- Meirelles, E.G., Tereso, A. and Santos, C., 2019. The importance of project management competences: a case study in public administration. In *New Knowledge in Information Systems and Technologies: Volume 1* (pp. 101-111). Springer International Publishing.
- Mehta, C. and Mehta, K. 2011. A Design Space and Business Strategy Exploration Tool for Infrastructure-based Ventures in Developing Communities. *International Journal for Service Learning in Engineering, Humanitarian Engineering and Social Entrepreneurship*, 6(2):30-57.
- Meskendahl, S. 2010. The influence of business strategy on project portfolio management and its success - A conceptual framework. *International Journal of Project Management*, 28(8):807-817. <http://dx.doi.org/10.1016/j.ijproman.2010.06.007>.
- Mills, J. and Birks, M. 2014. *Qualitative methodology: a practical guide*. 1<sup>st</sup> ed. New Jersey: SAGE.

- Mir, F.A. & Pinnington, A.H. 2014. Exploring the value of project management: Linking Project Management Performance and Project Success. *International Journal of Project Management*, 32(2):202-217. <http://dx.doi.org/10.1016/j.ijproman.2013.05.012>.
- Mohajan, H.K. 2018. Qualitative research methodology in social sciences and related subjects. *Journal of Economic Development, Environment and People*, 7(1):23-48.
- Mollick, E. 2014. The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, 29(1):1-16.
- Müller, R. and Jugdev, K. 2012. Critical success factors in projects. *International Journal of Managing Projects in Business*, 5(4):757-775.
- Müller, R. and Turner, R. 2010. Leadership competency profiles of successful project managers. *International Journal of Project Management*, 28(5):437-448.
- Müller, R., Martinsuo, M. and Blomquist, T. 2008. Project portfolio control and portfolio management performance in different contexts. *Project Management Journal*, 39(3):28-42.
- Murray, A. and Sowden, R. 2015. *Introduction to P3M3*. 3<sup>rd</sup> ed. United Kingdom: Axelos Global Best Practices.
- Murray, J. 2013. Likert Data: What to Use, Parametric or Non Parametric? *International Journal of Business and Social Science*, 4(11): 258-264
- Musawir, A. ul, Abd-Karim, S.B. & Mohd Danuri, M.S. 2016. Project Governance: Enabling Organizational Strategy. 10th ASEAN Postgraduate Seminar, 2016.
- Mustafa, A.J. 2015. Organizational Project Management Maturity Model (OPM3) to Improve Ministry of Construction and Housing (MOCAH) Within Kurdistan Regional Government (Doctoral dissertation). USA: Texas A & M University. Available electronically from <https://hdl.handle.net/1969.1/155187>
- Nordbäck, E.S. and Espinosa, J.A. 2019. Effective coordination of shared leadership in global virtual teams. *Journal of Management Information Systems*, 36(1):321-350.
- Norman, G. 2010. Likert scales, levels of measurement and the “laws” of statistics. *Advances in Health Sciences Education*, 15(5):625-632.
- Ojiako, U., Petro, Y., Marshall, A. and Williams, T. 2021. *The impact of project portfolio management practices on the relationship between organizational ambidexterity and project performance success*. Production Planning & Control: 1-15.
- Olusola, O.I., Madugu, M.L., Abdul-Manaf, N.A. and Dharmadasa, I.M. 2016. Growth and characterisation of n-and p-type ZnTe thin films for applications in electronic devices. *Current Applied Physics*, 16(2):120-130.
- Oosthuizen, C. 2017. Project portfolio management best practice and implementation: A South African perspective. *International Journal of Innovation and Technology Management*, 15(04):13.
- Pajares, J. and López, A. 2014. New methodological approaches to project portfolio management: The role of interactions within projects and portfolios. *Procedia Z Social and Behavioral Sciences*, 119(1):645-652.
- Patanakul, P. 2015. Key attributes of effectiveness in managing project portfolio. *International Journal of Project Management*, 33(5):1084-1097.

Patterson, M.L. 2005. *New Product Portfolio Planning and Management*. The PDMA Handbook of New Product Development: 46-58.

Pell, G. 2005. Use and misuse of Likert scales. *Medical education*: Volume39 (9): 867-867  
Petrinska-Labudovikj, R. 2014. Project portfolio management in theory and practice. *MEST Journal*, 2(2):192-203.

Petro, Y. and Gardiner, P., 2015. An investigation of the influence of organizational design on project portfolio success, effectiveness and business efficiency for project-based organizations. *International Journal of Project Management*, 33(8), pp.1717-1729.

Plano Clark, V.L. 2010. The adoption and practice of mixed methods: US trends in federally funded health-related research. *Qualitative Inquiry*, 16(6):428-440.

PMI (Project Management Institute). 2013c, The standard for portfolio management, 3rd edition., Project Management Institute, Inc., Newtown Square, Pennsylvania.

PMI. 2021. *The Standard for Project Management and A Guide to the Project Management Body of Knowledge*. 7<sup>th</sup> ed. Newtown Square, PA; Project Management Institute.

PMI. 2013. A Guide to the Project Management Body of Knowledge PMBOK GUID, 5<sup>th</sup> ed. Newtown Square, Pennsylvania: Project Management Institute.

PMI. 2013. *Organizational Project Management Maturity Model (OPM3®)*. 3<sup>rd</sup> ed. Newtown Square, Pennsylvania, USA: Project Management Institute, Inc.

PMI. 2017a. *A guide to the project management body of knowledge: PMBOK guide*. Sixth edition. Newtown Square, Pennsylvania, USA: Project Management Institute, Inc.

Portman, H. 2022. Project management maturity and excellence models: Stirring in the fruit bowl. *PM World Journal*, XI(II), February.

Porumbescu, G.A. 2015. Using transparency to enhance responsiveness and trust in local government: can it work? *State and Local Government Review*, 47(3):205-213.

Project Management Institute. 2013. *A guide to the project management body of knowledge (PMBOK guide)*. 5<sup>th</sup> ed. Newtown Square, Pennsylvania: Project Management Institute, Inc.

Rajegopal, S. 2013. *Portfolio Management - How to Innovate and Invest in Successful Projects*. New York: Palgrave Macmillan.

Rayhan, M.D., Alam, M.G.R., Dewan, M.A.A. and Ahmed, M.H.U., 2022. Appraisal of high-stake examinations during SARS-CoV-2 emergency with responsible and transparent AI: Evidence of fair and detrimental assessment. *Computers and Education: Artificial Intelligence*, p.100077.

Reyck, B.D., GrushkaVCockayne, Y., Lockett, M., Calderini, S.R., Moura, M. and Sloper, A. 2005. The impact of project portfolio management on information technology projects. *International Journal of Project Management*, 23(7):524-537.

Ritchie, J., Lewis, J., McNaughton Nicholls, C. and Ormston, R. eds. *Qualitative research practice: A guide for social science students and researchers*. London: Sage Publications.

- Romain, D., Martellini, L. and Meucci, A. 2013. Risk Parity and Beyond – From Asset Allocation to Risk Allocation Decisions. *SSRN Electronic Journal*, 2355778.
- Rocco, T.S. and Plakhotnik, M.S., 2009. Literature reviews, conceptual frameworks, and theoretical frameworks: Terms, functions, and distinctions. *Human Resource Development Review*, 8(1), pp.120-130.
- Ruedas, A.Y.S., Improvement Processes in The Organizational Context Of Institutions Providing Educational Services. Journal homepage: [www.ijrpr.com](http://www.ijrpr.com) ISSN, 2582, p.7421.
- Salameh, H. 2014. What, When, Why, and How? A Comparison between Agile Project Management and Traditional Project Management Methods. *International Journal of Business and Management Review*, 2(5):52-74. <http://www.eajournals.org/wp-content/uploads/What-When-Why-and-How-A-Comparison-between-Agile-Project-Management-and-Traditional-Project-Management-Methods.pdf>.
- Sax, L.J., Gilmartin, S.K. and Bryant, A.N. 2003. Assessing response rates and nonresponse bias in web and paper surveys. *Research in Higher Education*, 44(4):409-432.
- Schellenberg, T., Weghorst, K. and Cahill, P. 2013, June. 6.1. 2 Portfolio Management Overview. In *INCOSE International Symposium*, 23(1):820-832).
- Schlösser, T., Dunning, D., Johnson, K.L. and Kruger, J. 2013. How unaware are the unskilled? Empirical tests of the “signal extraction” counter explanation for the Dunning–Kruger effect in self-evaluation of performance. *Journal of Economic Psychology*, 39(1):85-100.
- Schoenherr, T., Ellram, L.M. and Tate, W.L. 2015. A note on the use of survey research firms to enable empirical data collection. *Journal of Business Logistics*, 36(3):288-300.
- Schulmerich, M. 2013. The Efficient Frontier in Modern Portfolio Theory: Weaknesses and how to overcome them. Investment management consultants’ association. Investments and wealth. [www.saga.com](http://www.saga.com).
- Serrado, P. and Turner, R. 2015. Project Portfolio Control and Portfolio. *Project Management Journal*, 39(2) (February): 28-42. <http://onlinelibrary.wiley.com/doi/10.1002/pmj.20053/full>.
- Serrador, P. and Turner, R. 2015. The relationship between project success and project efficiency. *Project Management Journal*, 46(1):30-39.
- Semerádová, T. and Mrázek, J., 2015. The Influence of Experience and Education of Project Managers on Project Success. In *Liberec Economic Forum* (p. 435).
- Shatri, Z.G., 2020. Advantages and disadvantages of using information technology in learning process of students. *Journal of Turkish Science Education*, 17(3), pp.420-428.
- Silva, C.S., Pereira, C. and Magano, J. 2021. The value of project management to competitiveness: Key factors from a holistic and practical perspective. *International Journal of Managing Projects in Business*: 1-25.
- Shojaei, P. and Haeri, S.A.S. 2019. Development of supply chain risk management approaches for construction projects: A grounded theory approach. *Computers & Industrial Engineering*, 128:837-850.
- Srivannaboon, S. & Munkongsujarit, S. 2017. *Project management and project portfolio management in open innovation: Literature review*. PICMET 2016 - Portland International Conference on Management of Engineering and Technology: Technology Management for Social Innovation, Proceedings: 2002-2007.

- Steyn, J. 2015b. Projects, Programmes and Project Portfolios. (February).  
[https://cdn.ymaws.com/www.projectmanagement.org.za/resource/resmgr/Events/Projects,\\_Programmes\\_and\\_Por.pdf](https://cdn.ymaws.com/www.projectmanagement.org.za/resource/resmgr/Events/Projects,_Programmes_and_Por.pdf).
- Tashman, P. and Raelin, J. 2013. Who and what really matters to the firm: Moving stakeholder salience beyond managerial perceptions. *Business Ethics Quarterly*, 23(4):591-616.
- Teller, J. and Kock, A. 2013. An empirical investigation on how portfolio risk management influences project portfolio success. *International Journal of Project Management*, 31(6):817-829.
- Teller, J., Unger, B., Kock, A., Gemünden, H.G. 2012. Formalization of project portfolio management: the moderating role of project portfolio complexity. *Int. J.Proj. Manag*, 30(5):596-607.
- Teller, J., Unger, B.N., Kock, A. and Gemünden, H.G. 2012. Formalization of project portfolio management: The moderating role of project portfolio complexity. *International Journal of Project Management*, 30(4):596-607.
- Thiry, M. 2007. Program management: a strategic decision management process. The Wiley guide to project, program, and portfolio management: United Kingdom: Wiley publications: 113-143.
- Thomas, B., Eliasson, F. and Skoghagen, E. 2015. *Portfolio Management - The key to successful business A case study of a construction company*. Institute of Economic Research Lund School of Economics and Management, Lund University.
- Tolley, E.E., Ulin, P.R., Mack, N., Robinson, E.T. and Succop, S.M. 2016. *Qualitative methods in public health: a field guide for applied research USA*: John Wiley & Sons.
- Too, E. G. and Weaver P. 2014. The management of project management: A conceptual framework for project governance. *International Journal of Project Management*, 32(8):1382-1394.
- Tsotetsi, P. and Mugova, C. 2018. *Investigating the Efficiency and Effectiveness of Project Execution in a South African Project Based Organisation*. In Proceedings of the International Conference on Industrial Engineering and Operations Management: 2462-2475.
- Turner, R. and Zolin, R. 2012. Forecasting Success on Large Projects: Developing Reliable Scales to Predict Multiple Perspectives by Multiple Stakeholders Over Multiple Time Frames. *Project Management Journal*, 4(3):87-99.
- Voss, M. & Kock, A. 2013. Impact of relationship value on project portfolio success - Investigating the moderating effects of portfolio characteristics and external turbulence. *International Journal of Project Management*, 31(6):847-861.  
<http://dx.doi.org/10.1016/j.ijproman.2012.11.005>.
- Voss, M. 2012. Impact of customer integration on project portfolio management and its success - Developing a conceptual framework. *International Journal of Project Management*, 30(5):567-581.
- Wilson, A. and Laskey, N. 2003. Internet based marketing research: a serious alternative to traditional research methods? *Marketing Intelligence & Planning*, 21(1):79-84

Wu, G., Hu, Z. and Zheng, J. 2019. Role stress, job burnout, and job performance in construction project managers: the moderating role of career calling. *International Journal of Environmental Research and Public Health*, 16(13):2394.

Wuni, I.Y. and Shen, G.Q. 2020. Critical success factors for modular integrated construction projects: a review. *Building Research & Information*, 48(7):763-784.

Wyzalek, J. 2022. Strategic Goal Alignment and Portfolio Stakeholder Management. In *Rethinking Project Management for A Dynamic and Digital World*. Routledge: 162-166.

Yilmaz, K. 2013. Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2):311-325.

Young, M. and Conboy, K. 2013. Contemporary project portfolio management: Reflections on the development of an Australian Competency Standard for Project Portfolio Management. *International Journal of Project Management*, 31(8):1089-1100.

## APPENDIX A: ETHICAL CLEARANCE



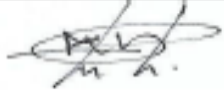
P.O. Box 1906 | Bellville 7535  
Symphony Road Bellville 7535  
South Africa  
Tel: +27 21 4603291  
Email: fbmsethics@cput.ac.za

Office of the Chairperson Research Ethics Committee	<b>FACULTY: BUSINESS AND MANAGEMENT SCIENCES</b>
--	--

The Faculty's Research Ethics Committee (FREC) on 3 May 2022, ethics APPROVAL was granted to Elvis Mahote (205061508) for a research activity at the Cape Peninsula University of Technology for MTech: Business Admin. (Project Management).

Title of project:	The impact of effective portfolio management in meeting strategic objectives on delivery of capital projects in the Cape Metropolis  Researcher (s): Dr J Jowah
-------------------	---

Decision: **APPROVED**

	5 May 2022
Signed: Chairperson: Research Ethics Committee	Date

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the CPUT Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study requires that the researcher stops the study and immediately informs the chairperson of the relevant Faculty Ethics Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines, and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, notably compliance with the Bill of Rights as provided for in the Constitution of the Republic of South Africa, 1996 (the Constitution) and where applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003 and/or other legislations that is relevant.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after two (2) years for Masters and Doctorate research project from the date of issue of the Ethics Certificate. Submission of a completed research ethics progress report (REC 6) will constitute an application for renewal of Ethics Research Committee approval.

**Clearance Certificate No | 2022 FBMSREC 013**

## APPENDIX B: CONSENT LETTER FROM MUNICIPALITY



CITY OF CAPE TOWN  
ISIXEKO SASEKAPA  
STAD KAAPSTAD

---

Date : 25 March 2022  
To : Director: Policy & Strategy  
Reference : PSRR-0317

---

### Research Approval Request

In terms of the City of Cape Town System of Delegations (March 2022) - Part 13, No 3 Subsections 4, 5 and 6

\*Research:

- (4) To consider any request for the commissioning of an organizational wide research report in the City and to approve or refuse such a request.
- (5) To grant authority to external parties that wish to conduct research within the City of Cape Town and/or publish the results thereof.
- (6) To after consultation with the relevant Executive Director: grant permission to employees of the City of Cape Town to conduct research, surveys etc. related to their studies, within the relevant directorate

The Director: Policy & Strategy is hereby requested to consider, the request received from

Name	: Elvis Mahote
Designation	: Masters candidate
Affiliation	: Cape Peninsula University of Technology
Research Title	: "The Impact of effective project portfolio management in meeting strategic objectives on delivery of capital projects in the Cape Metropolis."

Taking into account the recommendations below (see Annexure for detailed review):

<p><b>Recommendations</b></p> <p>That the CCT via the Director: Policy &amp; Strategy grants permission to Elvis Mahote, in his capacity as a CCT employee in the Water and Waste Directorate: Project Monitoring Unit and a M. Tech candidate at Cape Peninsula University of Technology, to conduct research, subject to the following conditions:</p> <ul style="list-style-type: none"><li>• National, Provincial and City COVID-19 protocols and regulations to be adhered to for all engagements;</li><li>• Face to face engagements to be limited and online platforms to be used for interviews;</li><li>• Dissemination of questionnaires to CCT officials be via the researcher's private online email address;</li><li>• Participation of staff from all relevant line departments are subject to staff availability and survey, and interview participation should be minimised where possible;</li><li>• Participation of project management officials in the survey to a maximum of 30 officials;</li><li>• Participation as interview respondents to a maximum of 10 CCT officials.</li><li>• The Director: Corporate Project Programme and Portfolio Management(C3PM) to be the primary contact point for the research;</li><li>• The Directors: Environmental Management Department (EMD), Director: Infrastructure Implementation (Transport), and Director: Technical Services (Water and Sanitation) departments to advise and guide as needed on the selection of officials to participate in the research;</li><li>• The willingness and/or availability of individual CCT staff members to participate in the research study, in a voluntary capacity;</li><li>• Clear acknowledgement in the research report that the views of the participants and the analysis thereof are not regarded as official CCT policy;</li><li>• City officials and their inputs to be anonymised, and officials should be referred to by their functional roles only</li></ul>
--



<ul style="list-style-type: none"> <li>• The use of direct quotations in the report to be agreed in advance and in writing by the respondent concerned, and any text for direct quotation/s must be verified and signed off individually, ahead of any publication of the case study, policy briefing and/or report;</li> <li>• The City branding and logo not being used in the research report;</li> <li>• Outcomes and analysis of the research to be shared prior to completion/publication with the Dir: C3PM, the Director: BMD and the Directors of the relevant departments, with special focus on the PPM operational model work, the gaps and how to improve those gaps;</li> <li>• Submission of the completed research report to the Director: Environmental Management, Director: Corporate Project Programme and Portfolio Management, the Director: Technical Services (Water &amp; Sanitation), the Director: Infrastructure Implementation (Transport), the Director: Policy &amp; Strategy and the Manager: Research Branch - Policy &amp; Strategy, within 3 months of completion of the research report.</li> </ul>	
Delegated authority:	Acceptance by Applicant:
Approved <input checked="" type="checkbox"/> Comment: <u>extension granted</u> Not Approved <input type="checkbox"/> Comment: _____ Hugh Cole: Dir: Policy & Strategy: Acting <b>Daniel Sullivan</b> Date: _____ <small>Digitally signed by Daniel Sullivan Date: 2022.04.05 17:52:33 +0200</small>	I, _____ confirm that I agree to abide by the conditions as stipulated above. Applicant: <b>Elvis Mahote</b> Date: _____ <small>Digitally signed by Elvis Mahote Date: 2022.04.05 08:22:37 +0200</small>
CCT departments: No interviews or data to be provided without proof of acceptance of the conditions under which the research permission is granted.	Kindly return signed copy to <a href="mailto:shuyilemvo.dityana@capetown.gov.za">shuyilemvo.dityana@capetown.gov.za</a>

## APPENDIX C: SURVEY REQUESTING PARTICIPATION

----- Forwarded message -----

From: **Elvis Mahote** <elvis.mahote@gmail.com>

Date: Tue, May 17, 2022 at 4:36 PM

Subject: ACADEMIC RESEARCH SURVEY REQUESTING YOUR PARTICIPATION

To: Elvis Mahote [elvis.mahote@capetown.gov.za](mailto:elvis.mahote@capetown.gov.za)

---

Dear Participant,

This survey is part of the empirical research for a Master's degree in Project Management, TITLE OF RESEARCH; **Critical factors for effective project portfolio management of capital projects for a Western Cape municipality**. The objectives of this study are to determine the key drivers that influence the success of effective project portfolio management (PPM). We are interested in your perception of how factors influence the success of a portfolio, you are kindly requested to participate in the study by answering the posed questions. The permission to collect the data from your organisation has been granted. The survey should take about **10 minutes** to complete. Please be assured that the information will solely be used for the research purposes and at all times be treated as confidential and anonymous; no organizations will be identified.

Your participation will be of great value to the study.

- Your participation is voluntary.
- Your anonymity is ensured. Feedback on the responses obtained through the questionnaire will be reported as a collective; therefore, you will not be identified by name in the study.
- The information you provide will be used for the purpose of this research study only and will not be made available to any third party.
- Please answer questions honestly, based on your personal expertise, experience and views.

The survey has 3 sections (A,B & C) therefore you are kindly requested to answer all sections and submit it when you are done. Please open the link below and feel free to open it on your Computer, Tablet or Cell-phone. It will be highly appreciated if you can complete the survey by latest **Friday, 20 May 2022**.

<https://www.surveymonkey.com/r/FX6SZ7V>

Kind regards

**Elvis Mahote**

Masters Candidate

Email: [elvis.mahote@gmail.com](mailto:elvis.mahote@gmail.com)

Cell: 0614303079 (Calls & WhatsApp)

## APPENDIX D: QUESTIONNAIRE

### Questionnaire

#### Critical factors for effective project portfolio management of capital projects for a Western Cape municipality

This is an academic exercise and please note; this is not compulsory and you do it at your free will. Do not put your name or any markings that will identify you. You are free to withdraw from the research at any time without having to give a reason. Your identity and your responses are strictly confidential and no information will be given to any authorities for any reason, your participation is voluntary. Thank you for participating in this information gathering.

The objectives of this study are to determine the key drivers that influence the success of effective project portfolio management (PPM). We are interested in your perception of how factors influence

#### Section A - Biography

Thank you for participating in this study.

##### \* 1. Gender Specification

- Male
- Female

##### \* 2. What is your age?

- 25 to 34 Years
- 35 to 44 Years
- 45 to 54 Years
- 55 to 64 Years

##### \* 3. What is your position in the organisation?

- Senior Management
- Middle Management
- Portfolio Manager
- Project Manager
- PMO
- Other

\* 4. Please indicate your level of education

- PHD
- Masters
- Honours/Post-Grad
- Diploma/Degree
- Matric

\* 5. How long have you been involved in projects at this level?

- 0-5 Years
- 6-10 Years
- 11-15 Years
- 16-20 Years
- 25 and above, Years

\* 6. How long have you been using portfolio management model?

- 0-5 years
- 6-10 years
- 11-19 years
- 20+ years

\* 7. Does your organization have an official project portfolio manager(s)?

- Yes
- No

\* 8. How is your understanding on organisation strategic objectives?

- None
- Low
- Average
- Fully Knowledgeable

\* 9. How many projects in your portfolio currently?

- 1-10
- 11-20
- 21-29
- 30+

\* 10. In your organisation, which department do you work in?

- Roads and Transport
- Water and Solid Waste Services
- Energy
- Finance, Corporate Services and IT
- Community Service and Health
- Human Settlement
- Other

\* 11. How successful do you perceive your organization's project portfolio management?

- Unsuccessful
- Slightly Successful
- Mostly Successful
- Very Successful

## SECTION B;

### EFFECTIVE PORTFOLIO MANAGEMENT

Please rank the following by crossing the most applicable. The weightings are; 1 to 5 on an Likert scale (1- strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, and 5 – strongly agree.

	<b>Critical factors for effective project portfolio management of capital projects for a Western Cape municipality in South Africa.</b>	Strongly agree	Agree	Neutral	Disagree	Strongly
	<b>Process</b>					
	<b>How would you assess the use of Portfolio management guidance in your organisation?</b>					
1	Stakeholder management activities is not part of our portfolio management process	1	2	3	4	5
2	Monitoring the effectiveness of our portfolio benefit management process	1	2	3	4	5

3	Monitoring to improve the effectiveness of our finance management process	1	2	3	4	5
4	Portfolio management processes interface to project processes and corporate strategic planning processes.	1	2	3	4	5
5	Processes are in place to regularly review the portfolio to ensure optimal mix of projects.	1	2	3	4	5
6	We have portfolio processes to translate strategic priorities into programmes	1	2	3	4	5
7	We monitor portfolio to improve the effectiveness of our risk management process.	1	2	3	4	5
8	Our Portfolio have a documented stakeholder management policy, strategy and process.	1	2	3	4	5
9	We are involved in the crafting of corporate strategic objectives	1	2	3	4	5
10	Selection of capital project to be implemented is a top down approach.	1	2	3	4	5
	<b>Organization</b>					
11	We have the responsibility to maximise the contribution to strategic objectives	1	2	3	4	5
12	There are formal commitments from team to review spend against the portfolio financial plan	1	2	3	4	5
13	There is clear executive accountability to ensure portfolios are effectively controlled.	1	2	3	4	5
14	Our organization structure is optimized to ensure efficiency of decision making.	1	2	3	4	5
15	Portfolio level decision making body or committee has been established	1	2	3	4	5
16	Responsibility for acquiring and allocating resources is not defined	1	2	3	4	5
17	Risk owners understand and manage risk, but without consistent processes	1	2	3	4	5
18	Our organization structure includes responsibility of ensuring portfolio's customer satisfaction	1	2	3	4	5
19	Organization has an effective and simplified project portfolio operating method	1	2	3	4	5
20	All our capital projects are aligned to the corporate strategic objectives.	1	2	3	4	5
	<b>Performance</b>					

21	Our portfolio delivers most of its defined benefits	1	2	3	4	5
22	Financial risk is priority to better align portfolio to meet objectives	1	2	3	4	5
23	Executives are confident that all strategic objectives can be achieved within target timelines	1	2	3	4	5
24	Our portfolio aims towards achievement of strategic objectives for the least time, cost and risk.	1	2	3	4	5
25	Portfolio has resource performance tracking and utilization	1	2	3	4	5
26	The portfolio underperforms as a result of risks that could have been anticipated	1	2	3	4	5
27	Stakeholders are generally unaware of the portfolio's status	1	2	3	4	5
28	Effective portfolio management can improve project governance.	1	2	3	4	5
29	Individual project performance are not recognized anymore	1	2	3	4	5
30	We strive to perform better in order to achieve corporate strategic objectives	1	2	3	4	5

### SECTION C - OPEN ENDED QUESTIONS

Kindly write your answers in bullets if possible.

\* 43. REQUEST 1; List 5 critical success factors that are important (in your opinion) which are a must do for effective project portfolio execution

\* 44. REQUEST 2; How does project portfolio management practice assist you in your workplace?

\* 45. REQUEST 3; List 3 common mistakes that you think are made by organisations in the management of portfolios


\* 46. REQUEST 4; What are the obstacles that prevent the improvement/maturity of organizational project portfolio management?



\* 47. REQUEST 5; What do you think about the notion that spending money on the budget is more important than meeting the organization's strategic goals?



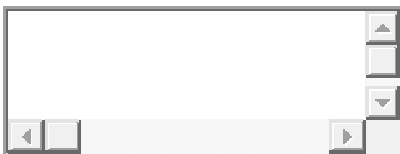
\* 48. REQUEST 6; How does project portfolio management model at your work environment helps in driving projects success?



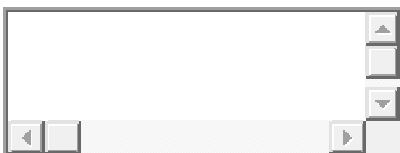
\* 49. What the things you like and dislike about project portfolio management?



\* 50. Elected public representatives or board members influence which projects are to be included in the portfolio? Agree or disagree. Please support your answer.



51. What other comments/questions would you like to raise in relation to the study?



**Thank you for your participation.**



## APPENDIX E: TURNITIN REPORT

Critical factors for effective project portfolio management of capital projects for a Western Cape municipality

### ORIGINALITY REPORT

<b>15%</b> SIMILARITY INDEX	<b>14%</b> INTERNET SOURCES	<b>2%</b> PUBLICATIONS	<b>10%</b> STUDENT PAPERS
--------------------------------	--------------------------------	---------------------------	------------------------------

### PRIMARY SOURCES

<b>1</b>	<b>Submitted to Cape Peninsula University of Technology</b> Student Paper	<b>5%</b>
<b>2</b>	<b>etd.cput.ac.za</b> Internet Source	<b>3%</b>
<b>3</b>	<b>scholar.sun.ac.za</b> Internet Source	<b>2%</b>
<b>4</b>	<b>Submitted to University of Stellenbosch, South Africa</b> Student Paper	<b>1%</b>
<b>5</b>	<b>creativecommons.org</b> Internet Source	<b>&lt;1%</b>
<b>6</b>	<b>Submitted to University of Witwatersrand</b> Student Paper	<b>&lt;1%</b>
<b>7</b>	<b>www.clarizen.com</b> Internet Source	<b>&lt;1%</b>
<b>8</b>	<b>www.ecosys.net</b> Internet Source	<b>&lt;1%</b>

## APPENDIX F: EDITING CERTIFICATE

### **NERESHNEE GOVENDER COMMUNICATIONS (PTY) LTD**

REGISTRATION NUMBER: 2016/369223/07

DR NERESHNEE GOVENDER (PhD)

WRITING PRACTITIONER • EDITOR • COPYWRITER • TRAINER

PG DIP HIGHER EDUCATION - Academic Developers (Cum laude)

PhD-Management Sciences

M-Tech Public Relations

B-Tech Public Relations (Cum laude)

B-Tech Journalism (Cum laude)

32 Kharwa Road

Kharwestan

Durban

4092

Cell: 084 702 25 53

neresh@ngcommunications.co.za

05/09/2022

ELVIS MAHOTE

Cape Peninsula University of Technology

elvis.mahote@gmail.com

## **RE: EDITING CERTIFICATE**

### **FOCUS AREA: CRITICAL FACTORS FOR EFFECTIVE PROJECT PORTFOLIO MANAGEMENT OF CAPITAL PROJECTS FOR A WESTERN CAPE MUNICIPALITY**

Dissertation submitted in fulfilment of the requirements for the degree Master of Technology: Business Administration in Project Management in the Faculty of Business and Management Sciences at the Cape Peninsula University of Technology

This serves to confirm that this thesis has been edited for clarity, language and layout.

Kind regards,



Nereshnee Govender (PhD)