UNIVERSITY OF KWAZULU-NATAL

IDENTIFICATION OF PROJECT MANAGEMENT STRATEGIES, ACTIVITIES AND PRINCIPLES FOR SUCCESSFUL DELIVERY IN THE PUBLIC SECTOR

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IDENTIFICATION OF PROJECT MANAGEMENT STRATEGIES, ACTIVITIES AND PRINCIPLES FOR SUCCESSFUL DELIVERY IN THE PUBLIC SECTOR

By

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Submitted in partial fulfilment of the requirements for the Master's Degree in Project Leadership and Management

Leadership Centre

University of Natal, Durban

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DECLARATION

I **Shahied Davids** declare that:

(i) The research reported in this dissertation/thesis, except where otherwise indicated, is my original research.

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SUMMARY

The key challenge for organisations today is to ensure that they continue to strive in a rapid changing, competitive and global environment. Privatisation in the public sector has lead to effectiveness and efficiency becoming essential to satisfy the client department's needs and requirements. This means that it is essential for NPWD to understand their client's needs and requirements, and be able to position itself to deliver the desired end product.

The question is, why does NPWD need to become more effective and efficient, whilst strategic planning in considered to be the overriding objective to achieve its goals? The simple premise of this paper is to improve the project management strategic planning by incorporating system thinking tools and techniques in the process. Systems thinking is a way of helping a person to view the world, including its organisations, from a broad perspective that includes structures, patterns and events, rather than just the events themselves. This broad view helps one to identify the real causes of issues and know where to work to address them.

The research problem addressed in this study is to identify project management strategies, activities and principles that will enhance the ability of National Public Works Department (NPWD) of the Eastern Cape to ensure continuous successful project delivery.

In order to identify these project management strategies, activities and principles, a multi-methodology consisting of a system thinking approach as well as a questionnaire were used. The findings of this exercise clearly highlight the specific areas where attention is required for improvements.

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CHAPTER ONE

INTRODUCTION, PROBLEM STATEMENT AND OUTLINE OF THE RESEARCH

1.1 INTRODUCTION

The National Department of Public Works (NDPW) has been assigned by the South African Government to be the custodian of state properties. To be the custodian implies that National Public Works must provide accommodation for other state departments or any organ that pursues the Government functions. The management of the Public Works Department of the Eastern Cape has recognised the importance of project management and no longer considers it as a subordinate function in the public sector. The tasks vested also include the maintenance and erection of new structures for the state. This involves a huge budget, which must be managed by the department to execute the various projects to satisfy the needs of its client departments. The department also has a social responsibility to improve the livelihood of the citizens of South Africa.

The project management process in National Public Works Department (NPWD) entails the ability to understand the entire process and the conflicting interests of varied professions. Project management for NPWD is therefore the utilisation of techniques, skills, tools as well as knowledge of project management applications to balance scope, time, cost, socio-economic goals, and different needs and expectations of client departments.

Since its establishment, the Department of Public Works' (NPWD) key policies are to encourage doing the job correctly, timeously, effectively and efficiently. The Public Works Department: Operations Project Management Section is responsible for rendering a service to South African Police Service, Justice, Correctional Service and the Defence Force, as well as involving the community to execute these services in the Eastern Cape Region.

Adler (2001: 1) maintains that there are three important factors to consider in completing a project successfully, namely:

- Meeting customer needs.
- Effective budget control.
- Timeous completion.

The role of a project manager involves a great a deal of responsibility as it is his or her duty to direct and supervise a project from initiation to completion.

The theory behind project management in the public sector seems simple: the client department lodges a complaint or request and the project management component executes the required services to meet the client departments' needs. However, implementing a project management strategy in a public sector is not as simple. A number of broad questions need to be answered:

- What are the needs of National Public Works Department's Client Departments?
- How well can clients department's needs be identified?
- How well can the NDPW interact with its client departments?
- What measures must be taken to motivate the current employees to ensure successful project delivery?

- What changes are required to ensure continuous successful project delivery?

1.2 THE MAIN PROBLEM

If personnel lack customer orientation and motivation, negative word of mouth will eventually destroy the business (Kotler, 2000: 692).

Any business needs information technology because it supports the organisation's business operation, managerial decision-making and strategic advantage (O' Brien, 1999: 29).

Tucker (1996: 5) maintains that intensive competition and pressure to change are forcing all types of businesses and organisations to constantly improve the level and quality of services they give to their customers or clients. Tucker (1996: 96) further states that it is the organisation's processes, teams and leaders which distinguish the excellent business from the mediocre.

Continual improvements of processes result in less re-work, downgrade, and better quality. This in turn leads to constant increase in productivity, resulting in greater profits and enhanced competition position. Therefore management should take a critical interest in processes improvement (Gitlow and Gitlow, 1987: 14).

For most of NDPW's clients, the difficulties experienced are the response to time, problems related to cost/budget control and inadequacy of conflict resolutions. The Chief Operations Officer, Dr Sean Phillips (26th March 2003), highlighted in a senior management meeting that the delays in project phases were the result of an environment subjected to risk and a process of evaluation that is ineffective.

The current process to deliver a particular project consisted of a lengthy procedure of seven checks prior to the approval to commence. The Chief Operations Officer (COO), Dr Sean Phillips (26th March 2003) furthermore informed all senior government officials that the client department, namely South African Police Services (SAPS) had made a decision to apply to the National Treasury to devolve the construction and maintenance budget from NDPW to SAPS as a result of the public works' inability to deliver projects on time.

Dr Sean Phillips (26th March 2003) continued that NDPW were faced with the possibility of other client departments following suite if the SAPS application was approved. As a result of this announcement, The Minister of Public Works, S. N. Sigcau (26th March 2003), declared projects "a state of emergency" and summoned all senior project leaders to embark on service delivery improvements to retain client departments.

This inability to deliver leads to the following main problem which will be addressed by the research:

What project management strategies, activities and principles will enhance the ability of National Public Works of the Eastern Cape to ensure continuous successful project delivery?

In order to attempt to answer the above question, a number of existing issues need to be clarified in order to formulate and implement a strategy.

1.3 SUB-PROBLEMS

In order to develop a research strategy to deal with and solve the main problem, the following sub-problems have been identified:

Sub-problem one

- Since the project management approach is fairly new in NDPW, various individual and sectional strategies were employed to ensure successful delivery of projects. These strategies however failed to satisfy the client departments. It therefore became necessary to implement changes in the way projects are managed. In order to achieve this it will be necessary to consider what the literature of prior research reveals as the necessary elements for the development and implementation of a successful project management strategy.

Sub-problem two

- The current standard procedure in NDPW is that NDPW Head Office develops strategies and the Regional Offices are expected to implement those strategies. Limited input into the development of the strategies is given by the Regional Offices. In order to assess whether these project management strategies required regional input, the operational staff and management team of National Public Works Department of the Eastern Cape will be approached to gauge their viewpoints.

Sub-problem three

- Based on the announcement made by the COO, it became evident that the lack of participation from the operational staff and the management team of the National Public Works Department of the Eastern Cape into the formulation of strategies contributed to the failure of the strategies. It is therefore imperative to involve operational staff members in all project delivery strategies.

Sub-problem four

- The criticality of retaining client departments necessitated the input from all client departments to assist the National

Department of Public Works in their undertaking to provide a service excellence and to exceed their expectations.

1.4 OBJECTIVES OF THE RESEARCH

The key challenge facing organisations today is to ensure that they continue to prosper in a rapidly changing, competitive and global environment. However, continual improvement of business processes is no easy task. Carley and Christy (1992), according to Singh (2002: 9), maintain that a turbulent environment impedes the ability to plan for arriving at coherent definitions of ends and means. Carley and Christy (1992) according to Singh (2002: 9) further stated that the very same act of intervention creates further turbulence, increases uncertainty and frustrates control.

Harrington (1991), according to Moonsamy (2002: 13), advocates that it is no longer enough to do a good job - doing a good job does not buy customer/client loyalty, and many organisations that have historically done a good job meeting customer requirements are going bankrupt. Today, customers/clients want to be delighted with surprisingly good product or services and expect every interaction with their service provider/suppliers to be pleasurable.

The overall performance of the core production unit of NPWD (operations: project management section) gave rise to the validity of the above statements. During the past four regional quarterly client forum meetings dated April, July, October and December, the NDPW client departments expressed their dissatisfaction in the way NDPW operated.

The purpose of the research was to identify strategies that could be used to ensure effective and efficient project delivery. More specifically, the objectives of this research were to:

- Determine from literature strategies that could enhance continuous successful project delivery.

- Establish the extent to which existing staff and Client Departments agree that these strategies can assist in successful project delivery, and

- Make recommendations on strategies that NDPW can introduce to ensure continuous successful project delivery.

In order to change the perception of NPWD's client departments, emphasis was placed on developing strategies with the focus placed on project management. Various strategies which are developed in isolation resulted in the dissatisfaction of the client departments. Top managers were developing strategies with very minimal input from lower levels. Mintzberg (1994: 161), argues that the "CEO should typically not be the one who is deeply involved with the detailed carrying out of the strategic planning and control process," since that person is not in the best position to ensure successful strategic planning.

NPWD projects experienced problems such as difficulty in meeting time frames, variations in cost control and inadequacy of conflict resolutions. The Eastern Cape regional office recorded only 47% projects completed on time during the 2002/2003 financial year and the delays that occurred resulted in increased cost and dissatisfied clients. During her Regional address to the Eastern Cape Regional Office in February 2003, the Minister of NDPW highlighted the lengthy process of evaluation and demanding factors of the environment which contributed negatively towards an efficient process of evaluation, hence resulting in major delays.

Aronson (2003: 1) regards systems thinking as one of the best approaches in dealing with complex and unstable environments and that it is fundamentally different from that of traditional forms of analysis. The systems thinking approach therefore, was mainly used in this research to identify project management strategies, activities and principles to enhance the project management effectiveness and efficiency of NPWD.

1.5 DELIMITATION OF THE RESEARCH

Delimiting the research makes the research topic manageable. The delimitation of the research points the reader to a specific dimension of project management. It allows for the reader to identify the usefulness of project management within the specific area researched as well as in other public sectors. The omission of certain areas does not mean that there is no need to research them.

1.5.1 The organisation

The research was conducted on the National Public Works Department (NPWD) of the Eastern Cape, with its Regional Office situated in Port Elizabeth, including its sub office in Umtata.

1.5.2 Geographic delimitation

The area researched is the area known as the Eastern Cape Region of National Public Works Department. This comprises Port Elizabeth, East London, Umtata and surrounding areas. The four major client departments which NPWD serves are Department of Justice, South African Police, Correctional Services and South African National Defence Force. The logistic offices are located in Port Elizabeth, East London and Umtata with sub offices in Humansdorp, Graaff-Reinett, Grahamstown, Port Alfred, King Williamstown and Aliwal North. The

research was focused within these areas, having taken into consideration the current project management strategy initiated by NPWD.

1.5.3 Respondents

The respondents were the personnel of National Public Works Department (NPWD). The researcher identified and interviewed key staff members of NPWD in order to elicit their ideas and opinions as to the project management's efforts of the department. The five members selected were sectional heads of the emerging Development Programme, Projects and Maintenance, Client Services, and Procurement. Their selection was based on the fact that they are responsible for improved service delivery throughout the phases of a project life cycle. In addition, because of their involvement with the whole project management process, senior management personnel of NPWD were interviewed to establish their understanding and intentions with regard to project management.

The research study examined the demands and expectations of the client departments. The client departments are those to whom NPWD provide accommodation and maintenance to their buildings.

1.5.4 Scope of the research

The research was conducted to evaluate the existing project management strategies that are part of the overall operation activities of the organisation. Using a literature study of various theories, a comparison was made between NPWD's plans, operational (within the Eastern Cape) implementation and client department's reactions.

1.6 SIGNIFICANCE OF THE RESEARCH

Drucker (1990: 81) maintains that non-profit organisations have a tendency not to prioritise performance and results. However, to control and to measure such performance and outcomes are critical. Drucker (1990: 84) further mentions that non-profit organisations by and large find it nearly impossible to discard anything. They believe whatever they do is "the Lords work" or "good cause". Non-profit organisations also have to differentiate between economic and moral causes.

It is important to realise that a strategy should be aimed at establishing a competitive advantage, not merely on implementing some form of improvement programme (Adendorff and de Wit, 1999: 2).

It is clear that the management of a project is a mammoth task. It has a distinct start and end and cannot be considered an infinite process. It uses a variety of measurement tools and techniques to accomplish and monitor project milestones. These include Work Breakdown Structures (WBS), Pert charts, Statement Of Work (SOW), Gantt charts, etc. Resources are frequently required on projects as an add-on as opposed to companies with permanent/full-time staff. It is expected of the project manager to generate the project definition, to ensure the reduction of tasks to manageable sets, acquire the suitable and needed resources, and to create the project team or teams to execute the project. It is the project manager who sets and determines the expected outcome of the project and therefore should guide and motivate the team to achieve pre-determined milestones. It is believed that a project never goes as planned; hence project managers must gain knowledge of how to become accustomed to change (Kerzner, 1995: 2).

Kerzner (2001: 573–583) further maintains that project management is subjected to error and that things can go wrong, which are commonly known as barriers. The following is a list of possible barriers:

- *Lack of communication*: occurs when parties involved in the project do not talk to each other - creating misunderstandings.
- *Discrepancy:* misinformation or inaccurate projects can result in poor decision making.
- *Non compliance with approved standards:* results in poor quality of delivery.
- *Non compliance with regulations*: can result in the project being stopped/halted by the relevant authorities.
- *The threat of inclement weather*: bad weather conditions can cause time delays and hamper the timeous completion of a project.
- *Employee disputes and union strikes*: unforeseen Industrial Relations issues can result in project failure.
- *Conflicting personalities*: can cause behavioural problems between workers.
- *Inadequate leadership:* poor leadership results in project failure and poor service delivery.
- *Project goals that are poorly defined*: goals that are not well articulated and specified are harder to attain.

All goals should be project-specific, quantifiable, realistic, approved, and have practical time frames.

Fogarty, Hoffmann and Stonebraker (1989: 18) state that project management is a major determinant of an organisation's productivity and the aggregate productivity of organisations in the community plays a dominant part in the standard of living that the community experiences.

Chase and Aquilano (1989: 7) concur and point out that project management is not just a loosely knit aggregation of tools but rather a synthesis of concepts and techniques that relate directly to productive systems and enhance management.

The researcher feels that the above statements accentuate the need for the identification of strategies which can assist NDPW to increase their efficiency in project delivery.

1.7 RESEARCH METHODOLOGY

The research investigated National Public Works Department, its current project management strategies, the client department's logistic staff who operate within the Eastern Cape, the experience that has been amassed, the manner in which staff currently operates and the current use of project management tools and techniques as it is described in the text that is being researched.

The research methodology adopted in this paper was of a dual nature - systems thinking approach to determine how the subject being studied interacts with the other constituents of the system and a questionnaire to include a larger number of participants which considers the relationship between the concepts of methodology, theory and practices. The aim was to draw together and integrate methods for creativity, choice and implementation and to allow the participants in the study to broaden their knowledge of social systems explicitly and to improve them in the same manner that one can use engineering design principles to improve one's awareness of mechanical engineering systems.

Systems thinking was used in this research study as the primary methodology, supported by a number of methodological techniques, which included observations, archived data, reviews, meetings,

literature reviews, empirical data derived from a questionnaire and a brainwriting session, to acquire insight into the situation.

The process adopted was as follows:

- A framework of ideas was generated in which the knowledge about the situation being researched was expressed. It was therefore a thorough survey of the current theory to facilitate the understanding of the concept of project management strategy and impact of systems thinking within. This was required to make considered observations as to what options were available to enable the organisation to operate as a successful entity.
- The factors that could contribute or impede the development of a lasting relationship between the organisation and its client departments were investigated. The outcome was that a comparison between the organisation's current strategies and potential future activities could be made. This was necessary in order that as many options as possible were explored.
- A research instrument (questionnaire) to establish the existing and possible future project management strategies, procedures and activities of the organisation was developed. The results of the questionnaire were taken into account when the systems thinking approach (brainwriting exercise) was conducted.
- Proposals, suggestions and recommendations as to the strategies that the organisation could adopt in order to implement or improve project management strategies were made. The desired outcome was to increase production and satisfy the needs of NPWD's client departments.

1.8 OUTLINE OF THE STUDY

The study has been divided into the following chapters.

Chapter 1: **Introduction, problem statement and outline of the research**.

Chapter 2: **Literature research on project management strategies and related issues**. This chapter considers the demands which project management strategies place on the organisation's staff and management. Seay S. (2006: 1) advocates that there are different opinions on how to ensure successful delivery and management of projects. The underlying principle is to identify those strategies most suitable for a particular environment. One of the most important things needed in project management is to manage the expectations and relationships with stakeholders.

Chapter 3: **Contributing factors to successful project management**. This chapter presents the nature of systems thinking and its role relative to the project management practice. The chapter also seeks to provide important factors (technical, conceptual and human) that will assist with the identification of effective project management strategies.

Chapter 4: **The current practical situation in NPWD. An overview of NPWD: project management activities**. This chapter gives a brief background on the current situation of project management within NPWD.

Chapter 5: **Research methodology and analysis of biographical information**. The aim of this chapter is to present the methodologies as well as the implementation thereof.

Chapter 6: **Analysis and interpretation of the results of the empirical study**: The chapter further seeks solutions in order to make sustainable recommendations.

Chapter 7: **Conclusion and recommendations**. In this chapter recommendations on how to improve project management efficiency and effectiveness to the management of the organisation are discussed.

1.9 CONCLUDING REMARKS

Project management strategies require a very complex and detailed design. NPWD is currently in a position where changes should be considered, due to client departments being dissatisfied with the service delivery.

In the following chapters, a literature study will be conducted as to theories and practices which are available to develop strategies to enhance the overall performance of a non-profit organisation such as NPWD. The current practical situation within NPWD: Operations: Project Management of the Eastern Cape will be revealed. What will be taken into consideration are the project management principles, practices and activities. The empirical data obtained from the survey and brainwriting session will be analysed and used to make recommendations to improve the project management effectiveness and efficiency of NPWD of the Eastern Cape.

CHAPTER TWO
LITERATURE RESEARCH ON PROJECT MANAGEMENT STRATEGIES AND RELATED ISSUES

2.1 INTRODUCTION

"If you don't know where your business is going, any road will get you there." Strategic Planning: Business Strategy (2002), explains that senior managers are frequently too preoccupied with urgent matters, resulting in losing sight of their main objectives. This is one of the main reasons why a comprehensive strategic plan is necessary. Furthermore, an organisation is subjected to failure without an appropriate strategic plan to guide the organisation towards success.

Operations within any organisation contribute directly to competitiveness and leadership within a specific market. Operations Management: Project Management therefore needs precise, reliable and attainable objectives coupled with a sound implementation strategy (Jarvis, 2001: 1).

According to Slack, Chambers, Harland, Harrison and Johnston (1998: 74), it almost impossible for any organisation to plan in detail every facet of its present or future activities, but they can benefit from a strategic plan of direction and a plan of how to get there. In other words, all organisations need some sort of strategic plan of direction. This also means that the function of project management needs to be strategically planned to warrant success.

Taking the above observations into account, Operations Project Management Department should therefore first understand its

purpose in the organisation and after expressing its performance objectives, it needs to put together a set of common principles to steer and direct its decision making. This will ultimately become the strategy for project management within an organisation.

In the remainder of this chapter the term "strategy" and how it fits in the overall strategic decision making in the organisation will be discussed. It also indicates the type of decisions organisations can make in order to realise the need for improvement.

2.2 WHAT IS STRATEGY?

Today, whether it is on the playing fields, working environments, or even at home, strategic choices are necessary for survival and growth. Slack, Chambers, Harland, Harrison and Johnston (1998: 75) maintain that the term "strategic" generally signifies those decisions that are:

- widely spread throughout and are important for the organisation;
- recognising its market position in relation to the current environment; and
- striving towards achieving its long-term goals.

Furthermore, a strategy generally specifies how the organisation can achieve its overall goals. Managers usually determine shortcomings by comparing corporate strategy requirements with the production system's current and projected capabilities.

Strategic planning for excellence, according to Kerzner (1998: 1009), means that all aspects of the company should be considered. These aspects include:

- the working relationship among leaders, managers and employees;
- the relationship between staff and management;
- the function of various role players (especially the role of the executive project sponsor); and
- the company's corporate structure and culture.

Kerzner (1998: 1009) further advocates that even career planning for individual project managers ultimately plays a part in the organisation's excellence in project management or its mediocrity.

Kerzner (1998: 1010) further states that traditionally managers focussed on developing of strategies and overlooked the importance of an implementation strategy. He continues by saying that organisations recognised that project management principles could be useful when implementing organisational strategic plans.

Mintzberg et al. (1998) according to Singh (2002: 27) state that most textbooks on strategy define strategy as top managements' plans to achieve outcomes consistent with the organisational mission and goals.

It is for the same reason why Mintzberg (1994: 23-27) maintains that one simple definition would not do justice to the term "strategy". He continues by saying that it is a complex field and therefore can be described as a plan (intended), a pattern (realised), a position, a ploy and a perspective.

When it is referred to as "*strategy as a plan (intended)*" in a construction project management environment, it means a specific design of a desired outcome. Planning is therefore a predetermined result an organisation would like to achieve.

Slack et al. (1998: 353) mention that the purpose for planning is to make certain that the operation runs effectively, efficiently and to provide products and services as required by the customer/client. Ackoff (1999: 99-101), however, advocates that it can be regarded as one of the most complicated intellectual activities in which man can engage. He continues by saying:

- Planning is something one does in advance of taking action (*anticipatory decision-making*). It is a process of deciding what needs to be done and how it will be achieved prior to taking action.
- Planning will always be necessary when a desired future involves a group of independent decisions - which is a *system of decisions*. A set of decision forms a system.
- It is a process that is directed towards producing one or more future states which are required and are not expected to occur unless something else is done.

Ackoff (1999: 102) concludes that planning is therefore the evaluation of all interrelated decisions taken before application. Mintzberg (1994: 23 – 27) advocates that few strategies can be realised emergent strategies but perhaps not originally intended. The two proposed no learning and no control, respectively. As a result, strategy can also be described as a pattern. Syncresis Limited (2005-2008) states that many organisations would benefit from paying attention to both paths to strategy: the planned and the accidental.

Now, *strategy as a pattern*, highlights consistency over time; that is, repetitive or reoccurrence of behaviour over time as stated by Singh (2002: 29). Personal experience reveals that not all intended strategies are realised as expected and that in some cases the outcome (realisation) had nothing to do with the intention. The *"real world"*

unavoidably involves thinking ahead with allowance for some variations en route (Mintzberg, 1994: 24). Figure 2.1 is a clear representation of intentions that are fully realised (deliberate strategy) and those that are not realised (unrealised strategy).

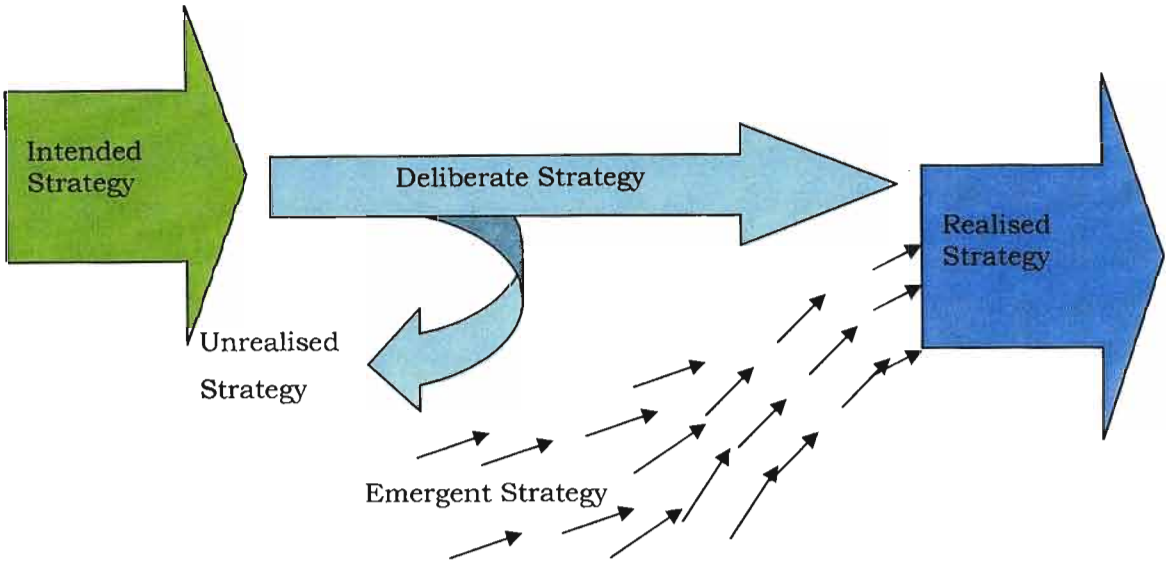

Figure 2.1: Forms of Strategy adopted from Mintzberg (1994: 24)

The literature of planning recognises both deliberate and unrealised strategies, with deliberate strategy as preference. It fails to recognise the emergent strategy and therefore results in a realised pattern not being expressively anticipated (Mintzberg 1994: 25). What can be concluded is that most organisations develop a strategy that broadly oulines the deliberate whilst details affecting the outcome comes from within. It is therefore wise, according to Mintzberg (1994: 25), to consider mixing these characteristics to reflect the situation at hand, and to have the necessary skills to forecast the future coupled with the need to address the unforeseen.

Some organisations on the other hand, arrange their physical layout of equipment and workforce around a few outputs. The aim is to position itself relative to a market; this is, *strategy as a position.* It is the approach selected for arranging resource flows in the transformation process by organising the physical layout of equipment and workforce around each operation (Hellreigel, Jackson and

Slocum, 1999: 716). Focus is being placed on the speed with which the products are created, designed and introduced; the ability to design a product for a particular customer group; and to modify a product for special needs. Furthermore, the strategy includes the ability to respond to sudden changes in the market demand as well as the ability to manufacture a variety of products over a short period of time. Organisations, however, also have a choice of doing things and for this reason strategy can also be described as a ploy and a perspective.

Singh (2002: 30) and Nickols (2000: 1) maintain that *strategy as a ploy* is a ruse and relies on secrecy and deception - simply placing the organisation in a position to "outwit" its competition.

On the other hand, *strategy as a perspective* looks inside the organisation – the applied knowledge of the strategists and the overall vision and goals of the organisation (Mintzberg, 1994: 27-28). It refers to strategists within the organisation who have different perceptions of what lies ahead – the perception based on the behaviour of the organisation. Nickols (2000: 1), states that strategy (perspective) "is part vantage point, particularly the way this view shapes and guides decision and actions". This systems approach aim is to develop sense by gathering all the various perspectives of role players to conclude the common concerns and reasons. Nickols (2000: 18) suggests that effective action can emerge if the perspectives considered and differences recorded are of great numbers. This will allow the strategists to consider all aspects when developing organisational specific strategies. It will be beneficial to consider all perspectives of the problem when developing specific strategies to address the weaknesses.

2.3 THE REQUIREMENTS FOR EFFECTIVE STRATEGIES

To develop major strategies, organisations need to meet a number of key requirements: (1) assessment of the present and future environment, (2) corporate self-appraisal, (3) an organisation structure that ensures planning, (4) consistency among strategies, and (5) development of contingency strategies (Koontz, O'Donnell and Weihrich, 1986: 120-122). These key elements will now be discussed in detail.

2.3.1 Assessment of the present and future environment

Since strategies are meant for the future, one must make a good overall prediction of what the future holds. This can be done by starting with a situation analysis of the present environment, and then forecasting the future for three, four, seven or more years. But forecasting the future can be difficult. Few people would have forecast the impact of the oil-producing nations' cartel on overall price levels (inflation) in the 1970's. Similarly, few economists foresaw the strong, sustained economic growth of the early 1980's (Koontz et al, 1986: 121).

Koontz et al. (1986: 121) further elaborate by stating that clearly the better an organisation can predict its future, establishing strategies with supporting tactics will become much easier to create and will place the organisation in a position to take advantage of its potential. However, except for economic and market forecasts, it has been difficult to put the forecast and assessment of environmental factors to practical use, but it can be done by planning strategically.

According to Three Sigma (2003: 1) there is nothing wrong with this process, except that a systems thinking approach takes it a little further by combining the processes of strategic planning, strategic thinking and tactical (short-range planning) implementation to give an

organisation a sustainable competitive advantage. A strategic thinking process is creating or examining the theory about the organisations strategy upon which the organisation's values are based. It allows the organisation to assess the certainties and enable them to plan ahead of time.

It can therefore be concluded that the systems approach supersedes the traditional approach by helping one to observe the market relevant to the organisation from a broader point of view. In addition it considers the events of all stakeholders and it includes patterns and formations thereof.

2.3.2 The internal environment: corporate self-appraisal

Making a corporate self-appraisal essentially involves asking these two questions: What is our business? What is our market? These simple questions are not always easy to answer, as many businesses have found out. In fact, many non-profit organisations could and should ask these questions.

To answer questions about its identity, Koontz et al. (1986: 121), highlight that a company must look at itself as a whole, analysing strengths and weaknesses in each functional area – marketing, product development, production and other operations areas such as finance, and public relations. It must focus attention on its customers and what they want and can buy, on its technological capabilities and financial resources. This approach tends to focus towards "one best way" of problem solving – a hard systems thinking approach, which seeks to engage with issues via rational problem solving. The hard systems thinking approach, however, was soon seen as problematic to certain schools of theorists. Jackson (1995: 1) therefore states the following:

"In the 1980's came a general understanding of the usefulness of the soft systems approaches for more complex problem situations, and in problem context which are pluralist and/or conflictual".

Furthermore, it was realised that the hard systems thinking approach in general was unable to deal with distinctively human problems, particularly complex conflictual problems, and directed the focus towards soft systems thinking. The "soft system" application developed by Checkland, according to Clayton and Radcliffe (1996: 1), advocates that systems thinking can be considered as a positive contribution when dealing with complex problems. Furthermore, it is extremely helpful where it is found difficult to fully and objectively define the task at hand.

Clayton and Radcliffe (1996: 1) further state that the overall objective of a soft systems approach, therefore, is to find ways to overcome the difficulties encountered when the problem was not clear. In fact, it was a second change of paradigm, where the problem situation was now 'what should we do?' rather than 'how should we do it?' This is the fundamental difference between a hard and soft systems approach. Checkland according Clayton and Radcliffe (1996: 1) believes that the organisation should be thought of as a human activity system with problem situations, and believes that to investigate it involves firstly real world observation and thinking to build up a rich picture of the problem situation, and secondly abstract thinking to build mental models of ideal situations, which are then compared with the real world situations. The comparison highlights the feasible and desirable actions that can be taken to improve the problem situation.

2.3.3 Consistency in strategies

Koontz, et al. (1986: 120-122) mention that in order for strategic planning to be useful, the plans must "fit" each other and have to be consistent throughout. This is regarded as one of the essential requirements when planning a strategy. For example, one medium sized company had a successful sales record as the result of a strategy of putting out quality products at lower prices than its larger competitors, who had done their selling through heavy and expensive advertising. Pleased with this success and after adding to its product line through acquisitions, the company then embarked on an additional strategy of trying to sell through costly advertising, which combined with price-cutting, had a disastrous effect on profits.

According to Slack et al. (1998: 796), companies which have formulated a strategy, which is consistent with their business strategy, achieve higher business performance than those without a strategy.

2.3.4 The need for contingency strategies

Koontz, et al. (1986: 120-122) state that because a strategy is developed for the future and that it is subjected to possible uncertainty, it is imperative for organisations to have contingency strategies. Where events might occur to render a strategy obsolete, and they often can without warning, it is wise to develop an alternate strategy based on a different set of premises. These are the "what if" kinds of strategies, supported by contingency plans that can be put into effect quickly, thus avoiding "crisis management".

Kachaner and Deimler (2008: 41) indicate that organisations need to stretch their thinking when developing strategies to address emerging and changing competitive patterns. It is about multiplying the

viewpoints through which you are evaluating your organisation by investing in the art of questioning.

2.4 THE IMPORTANCE OF A STRATEGY

Often, the question arises in most organisations as to why they should go to the trouble of putting a strategy together. The obvious answer, according to Slack et al. (1998: 796), is that an effective strategy helps the organisation to compete more effectively.

Slack et al. (1998: 796), further goes on to say that a shared strategy not only allows both areas to measure their own decisions against the common purpose, but also allows the implications of each other's strategy areas to be explored. A formally constructed strategy gives the basic structure which ensures that the many individual decisions taken around the organisation all point in the same direction.

A credible strategy reinforces the centrality of competitiveness in the culture of an organisation. This can be achieved by concentrating on the linkages between overall company strategy, objectives, the various departmental decision and the individual resources (Slack et al, 1998: 796).

2.5 STRATEGIES AND ETHICS

Ethics, as explained by Slack et al. (1998: 801), can be considered as the framework of moral behaviour, which determines whether a particular decision is judged as being either right or wrong. It is important to consider the following ethical issues in a project management environment when developing strategies (see table 2.1):

Decision Area	Some Ethical Issues to be Considered
Product/Service Design	• Client safety • Re-cyclability of materials • Energy consumption
Network Design	• Employment implications of location • Employment implications of vertical integration • Environmental impact of location
Layout of Facilities	• Staff safety • Disabled access • Energy efficiency
Process Technology	• Staff safety • Waste and product disposal • Noise pollution • Repetitive/alienating work • Energy efficiency
Job Design	• Staff safety • Workplace stress • Repetitive/alienating work • Unsocial working hours • Customer safety
Planning and Control	• What priority to give clients • Material utilisation and waste • Unsocial staff hours • Workplace stress • Restrictive organisational cultures
Capacity Planning and Control	• Recruitment policies • Unsocial working hours • Service cover in emergencies • Relationships with contractor's/consultants
Inventory Planning and Control	• Price manipulation in restricted markets • Energy management • Warehouse safety • Obsolescence and wastage
Supply Chain Planning and Control	• Honesty in supplier relationships • Transparency of cost data • Prompt payment to suppliers/contractors • Minimising energy consumption • Using re-cycled materials
Quality Planning and Control and Total Quality Management	• Customer safety • Staff safety

	• Workplace stress • Scrap and wastage materials
Failure Prevention and Recovery	• Environmental impact of project failures • Customer safety • Staff safety

Table 2.1: Some ethical considerations adopted from Slack et al, 1998: 800.

Slack et al. (1998: 803), explain that organisations which understand the importance of ethical dimensions to decisions, tend to take a proactive approach to their own ethical stance. This involves deciding the principles upon which they will make ethical-sensitive decisions by developing an explicit set of principles, which allow the organisation to avoid ethically ambiguous activities and gradually build up an ethical framework, which becomes accepted within the organisational culture.

2.6 THE STRATEGY CONCEPT

The concept of strategy is dynamic since it evolves as the environmental conditions evolve. According to Ketelhohn (1993: 4), "the nature of a network organisation changes in different environments: what works well in Italy may not do so in Japan, and vice versa, this is why organisations need to adapt to the local conditions and culture".

Ketelhohn (1993: 4) further explains that the concept of strategy is a strategic management process that adapts the organisation's basic posture to the different environments in which it is present. The decisions taken as part of a company's project management strategy are considered strategic because they:

- are relevant in all aspects when setting strategic goals;
- contribute to the overall success of the organisation in a particular market; and

- ensure that operational objectives and goals are met.

Slack and Lewis (2002: 6) explain that "strategy" is more than a single decision, but rather a total pattern of decisions.

2.7 FORMULATING A STRATEGIC PLAN

The formulation process of a strategic plan as explained by Kerzner (2001: 1012) is to determine a process of where an organisation wishes to progress to, the type of decisions needed, and when decisions need to be made to achieve its goals and objectives.

The formulation process of a strategic plan is as follows:

- Scan the external market and environment for condition shift;
- Identify threats and opportunities through the interpretation of the ever changing environment;
- Analyse the organisation's resources at hand for its advantages and disadvantages;
- Match the environmental opportunities with the resources and define the organisation's mission; and
- Establish goals to pursue the mission.

The outcome of this process, as emphasised by Kerzner (2001: 1012), is that the organisation will produce the right products and provide the required services in line with demands and needs of the external environment.

2.8 FORMULATING OF A PROJECT MANAGEMENT STRATEGY

Miltenburh (1995: 1) advocates that the business strategy of a firm is taking into account all the individual strategies of its component

functions. Successful firms generally interlink these strategies to gain a convincing advantage over its competitors.

Hill (1994: 27) emphasises that for an organisation to move forward, shortcuts should be eliminated. He outlines five fundamental steps that will guide an organisation in its actions to move forward.

These five steps are tabled as follows:

Step 1	Define the corporate objectives.
Step 2	Determine marketing strategies to meet these
Step 3	Assess how different products qualify in their respective markets and win orders against competitors.
Step 4	Establish the most appropriate process to manufacture these products.
Step 5	Define the corporate objectives.

Table 2.2: Five basic steps to assist organisations to formulate a strategy adopted from Hill, 1994: 27.

Although each step has substance in its own right, each has an impact on the others. This explains the involved nature of strategy formulation.

Tettemer (1991: 1) maintains that the strategy should be devised such that it will allow the displacement of traditional relationships and practices with new ones, while placing great emphasis on comforting top administrators during the period of change. This comforting should not only be about the validity of the outcomes of the projects, but primarily with the validity of the process relevant to project management. To enable a strategy and an implementation plan for

project management to be formulated, several questions pertaining to the matters discussed so far, need to be addressed:

The three primary questions are:

- What is the relative importance of the mission the organisation is contemplating? Are the projects part of the core business, as opposed to just facilitating support activities?
- Does the organisation want to measure the progress for achieving the results in addition to measuring only the results of its activities?
- Is the top management firmly committed to the complex transformation process that lies ahead? A willingness to perhaps replace practices which seemingly worked well for a long time with new ones; - acceptance of short term disruption of activities?; and commitment of resources and time (especially top management time) to see through a well devised game plan?

If the answers to the above are affirmative, then the organisation cannot afford not to transform, so as to facilitate project management and project management structures on a permanent basis.

The five secondary questions are:

- Is the organisation open-minded enough to accept and adjust to a transfunctional and network culture? The choice of the first project and project leader is of paramount importance. It requires the project leader to utilise conferences and educational workshops to enhance his or her ability (Easton and Day, 1991: 1).

- Will the necessary adaptation in the organisation structure be implemented? Extra-functional management positions will need

to be created and empowered *vis-à-vis* those of the functional managers, with the proper relationships to the latter, to top management and to the project customers.

- Is the "conventional" project management approach appropriate, or will a redefinition process to devise an organisation–specific methodology be necessary?

- Is the organisation willing to implement the operational restructuring which will be necessitated by a project management approach? The financial management system will invariably need to be reformed to provide for activity-based costing and control; the performance evaluation/remuneration system will need to be adjusted. "If project work is not part of the performance appraisal system, it will not be taken seriously" (Graham 1994: 706); the job-level system will have to be reformed to allow for project manager positions and levels; data bases pertaining to project planning and information systems will have to be established; and a system for project manager evaluation taking cognisance of impact, performance, cost and time will have to be devised.

- How much real autonomy is the organisation willing to bestow on its project managers? Evidently the project scope will determine the extent of the specific management style required. The possible range of determinants that was found to describe the range of the scope of projects is revealed in figure 2.2. The projects and suitable management approaches can now be classified along this continuum (see figure 2.3 and 2.4). The answer must then be considered in terms of four major implications for the organisation: - the classification of projects with reference to a continuum will probably lead to classification of project leaders with the promise of evolutionary

growth for the latter; - empowerment of project leaders. Analogous to the previous reasoning, this must result in a continuum of project leader empowerment; and - the establishment of a structured career path for project managers. The important considerations here are what is the highest level to which a project manager can aspire; do project managers fit into the organisation's post-level structure? Should project managers be lifted up salary-wise?

Small (money)	→	Big
Short (time)	→	Long
Limited human resources needs	→	Extensive human resources needs
Simple	→	Complex
Single discipline	→	Inter-disciplinary
Goal is function bound	→	Goal is not bound to a specific function
Low process involvement	→	High process involvement
Functional input predominant	→	Managerial input predominant
Pure scientist	→	Managerial skilled scientist
Input driven	→	Output driven
Project support	→	Project management

Figure 2.2: Continuum of project determinants adopted from Tettemer (1991: 1).

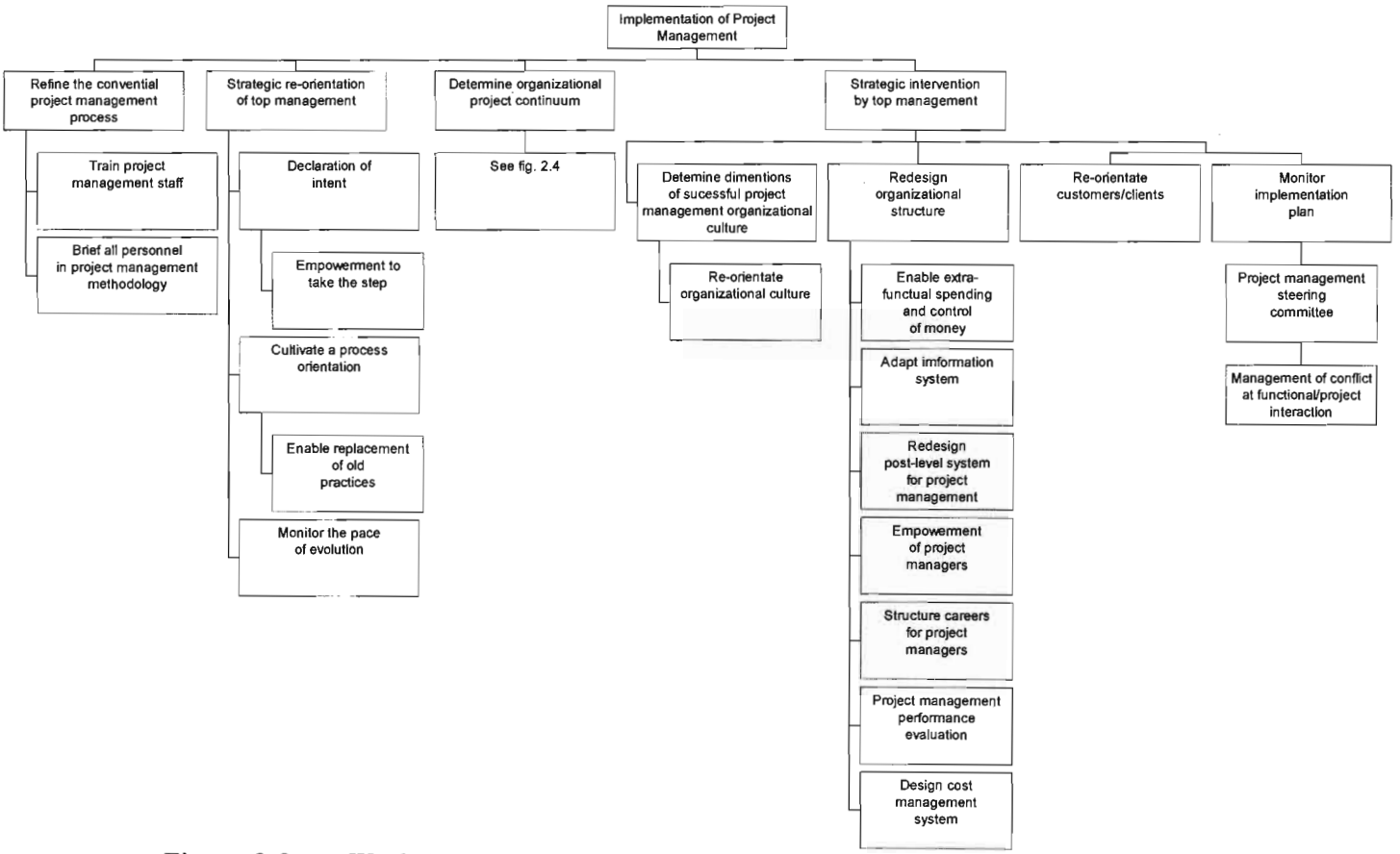

Figure 2.3: Work Breakdown Structure of project management implementation adopted from Tettemer (1991: 1)

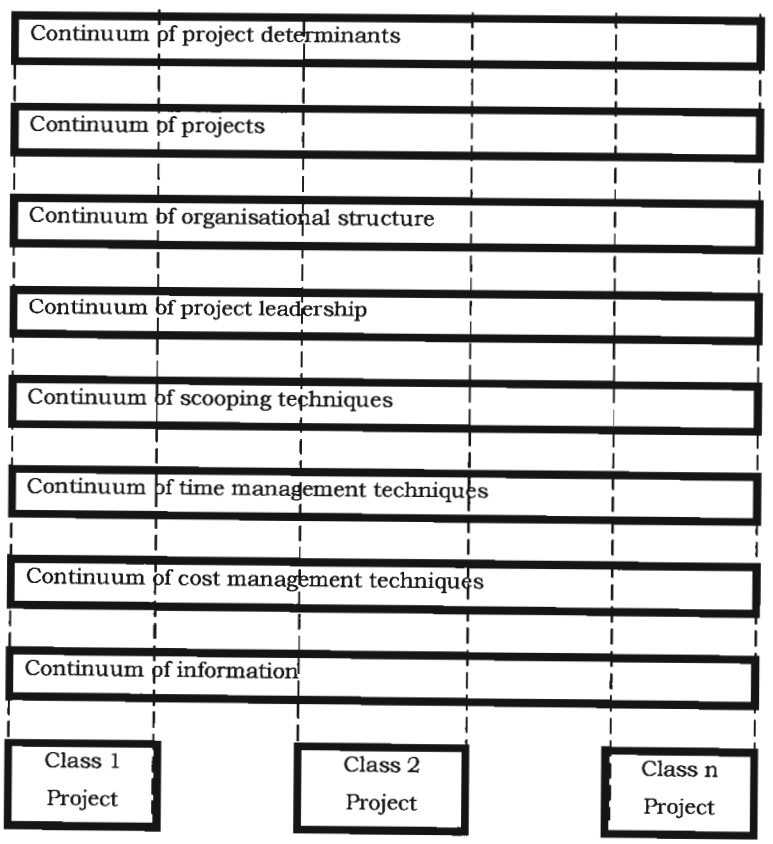

Figure 2.4: Continuum of project management scope adopted from Tettemer (1991: 1)

From the above citations it is evident that functionaries who become project managers have to contend with other skills and stresses than those in the areas from which they are taken and that they, of necessity, need to contend with dual proficiencies, at least for the short term. Without a career path there is very little motivation to set foot on that path and the best managerial material will probably not be enticed into this field of endeavour.

Accepting a continuum of projects and projects leaders, it is apparent that the salient exacting position of project manager is that on the right-hand side of the continuum. These people will not be readily available (if at all) without a developmental path from left to right through the continuum.

2.8.1 A project management implementation plan

Chen, Partington and Wang (2007:658) advocate that managers can be considered blindfolded without an implementation plan. It will therefore be extremely difficult to manage any project without a well designed plan. Easton and Day (1991: 1) advise that the implementation process must be carefully planned and that it can be done at any level which includes senior management, middle management, line managers, supervisors and staff as well as external consultants: it is essential to have a project management implementation game plan.

Krüger and Steyn (1995: 61) furthermore advocate that effective transitional management which entails prior planning, employee involvement and conflict resolution is needed when converting to a new project organisational structure.

The second step is for top management to demonstrate its unequivocal support for a transition to the project management way of

goal achievement (Krüger et al, 1995: 58). This needs to be communicated to the entire organisation by way of a clear and unambiguous declaration of intent (Graham 1994: 706). The implementation of a new order of things is fraught with anxiety. Krüger et al. (1995: 63) has found the commitment, cooperation and participation of all key project participants to be a major success factor. And to obviate the anxiety, insecurity, uncertainty and unrealistic expectations, and to substantiate the commitment of participants, top management's public support and belief is beyond question (Graham 1994: 706).

Project management by definition cuts across functional lines. Therefore the next step in the implementation plan is to establish a multi-functional project management steering committee. The function of this steering committee is the management and control of the design and implementation of the strategy as a project per se, and therefore to push for change, but not of a rate that in itself will build opposition (Tettemer, 1991: 1).

The fourth step should be to determine the work breakdown structure (WBS) of the "project". As is always the case with drawing up a WBS, this is no mean or single-handed task, but requires a concerted, top-level team approach (Lanford and McCann, 1983: 38-50).

Fifthly, the time scales need to be established so as to give the process a goal and meaning. In the sixth step, the cost of the implementation process (for some organisations even a conversion or transformation process) needs to be determined and managed. In the last instance, as with any regular project, continuous evaluation, which is the main task of the steering committee, is most important. After the decision to projectise, the implementation thereof is not an obvious process. Especially in large organisations with different divisional cultures, the thrust, experience, speed and acceptance of projectising may differ

markedly. It is also an experiential and evolutionary process, with organisations contemplating bigger and more complex projects in line with corporate growth. Exchange of experience and progress is an important source of information for the committee (Lanford and McCann, 1983: 38-50).

Experience has shown that this transformation up to full acceptance of the "new" culture, smooth operation and a perceivable increase in effective project target achievement, can take from three to five years.

2.9 CONCLUDING REMARKS

To compete in today's demanding environment, companies must ensure that the business that they choose to manage can deliver the desired goods/services with the high-perceived quality and low delivered cost. Ketelhohn (1993: 36) advocates that this can only be achieved if the whole system is carefully co-coordinated.

Findings from the literature revealed that the use of project management can undoubtedly fail, be unsuccessful in its initiation and be ineffective in achieving realistic time scales. It is believed that top management possess the passion, but are unwilling to introduce a project management approach into its former bureaucratic organisation. It requires managers to apply their skills differently and to obtain new knowledge that is necessary for proper project management application.

It is clear that the application of a project management approach will affect the well-being of a structure that is in place. The ultimate challenge that faces managers and leaders is whether they can develop a project management strategy, which can successfully meet the challenges that lie ahead for an organisation. Using systems

thinking within the process can contribute positively to strategy development.

This chapter discussed the related topics of a project management strategy, which included the prerequisites for a successful project management implementation strategy.

The following chapter details the factors that contribute to successful project management. In order to develop and recommend project management strategies one must take into account the relevant project planning and control techniques, project leadership and other factors that will ensure successful project management.

CHAPTER THREE

CONTRIBUTING FACTORS TO SUCCESSFUL PROJECT MANAGEMENT

3.1 INTRODUCTION

At today's pace of change, effective leaders and teams are essentially there to propel an organisation into an exciting future of exceptional results. Organisations need leaders who are creative, lead change, take risks, coach, and inspire those around them. In today's increasingly uncertain and turbulent times, organisations must depend on the people in their systems to develop a culture of innovation and change. It is people who will push for change and therefore cannot remain untouched by the turbulence of the world in general, rapid changes in information technology and the changing work patterns.

Successful project management requires significant and systematic contribution towards the understanding of a success condition (Ahadzie, Proverbs and Olomolaiye, 2007: 676). Amjal and Koskinen (2008: 12) furthermore state that one of a project manager's/leader's crucial roles is to develop a culture with a desire to create norms, standards and goals.

According to Kerzner (2001: 1001), project management first gained prominence in South Africa within the building and construction industries, followed closely by the professional practices such as engineering, quantity surveying and architecture. Today most industries are taking a serious look at the advantages of implementing project management principles and techniques. He further states that

project managers in South Africa appear to rely heavily on their immediate supervisors for authorization to complete activities. Not withstanding this, a project manager usually plays a pivotal role within the project and is accountable for the successful execution of the project. The responsibility lies with the project manager to manage and lead the entire project, which includes the project team members (human factor).

Emphasis in this chapter will be placed on all the factors that contribute to successful project management. Furthermore, the chapter will endeavour to briefly describe systems thinking as a perspective followed by the "new age thinking" of systems thinking within project management. Since project management itself is such a diverse function, the chapter will continue with the focus being placed on project planning and control techniques, and the leadership role in the project context to assist with the intervention which will be dealt with in chapter five.

3.2 SYSTEMS THINKING AS A PERSPECTIVE

3.2.1 What is a system?

Webster's 1913 dictionary, according to Webster's 1913 dictionary (2003: 1), defines a system as "an assemblage of objects arranged in regular subordination, or after some distinct method, usually logical or scientific; a complete whole of objects related by some common law, principle, or end; a complete exhibition of essential principles or facts, arranged in a rational dependence or connection; a regular union of principles or parts forming one entire thing; as, a system of philosophy; a system of Government; a system of divinity; a system of botany or chemistry; a military system; the solar system".

O' Conner and McDermott (1997: 2) acknowledge that a system maintains its reason and purpose as part of the whole and allows the various parts to interact.

From these definitions alone a conclusion can be drawn that a system is a set of interrelated parts, with each directly or indirectly related to every other component and forms part of the whole.

3.2.2 What is a function?

A function is a set of like tasks that require similar skills and knowledge that are grouped together, managed and administered and typically cut across many processes. With functional thinking the emphasis is on the interaction among similar parts, similar tasks, and similar skills, as opposed to emphasis on the interactions between different skill sets within a containing system.

3.2.3 Systems thinking

Systems thinking views the organisation as a complex system of interrelated parts. It involves mapping non-linear cause and effect relationships and uses computer simulation to measure the validity of assumptions and the impact of changes on the bottom line (Ryan, 2001: 20).

Peter Senge's "Fifth Discipline" according to Ryan (2001: 20) advocates that, the symptom of the mindshift, systems thinking, changes the way work is done. In the short term there is a greater emphasis on the interactions with other parts of the system. In the long term designed/redesigned processes pay more attention to the interfaces which can result in changes in how work is done.

Systems thinking is, according to Bellinger (2003: 1), a decisive way of thinking to understand how things work. Systems thinking can therefore be viewed as a perception to go further than actual events. It searches for essential systemic interrelationships, behaviours and patterns which will allow decision takers create and apply sustainable strategic applications. It symbolises a "world-view" which means that the basis for understanding by and large lies with the ability to interpret the interrelationships within a system. The successful operation of a system demands the interrelationships of the outcome of events and behaviours.

3.2.4 How to deal with our most difficult problems

Aronson (2003: 1) advocates that so many important problems that people face in today's business environment have some degree of complexity. It requires the involvement of many role players, and is the result of actions taken in the past to complement improvement. To deal with such problems can become extremely complicated and the outcome of predictable solutions can result in discouragement to effectively deal with them. Systems thinking is beneficial in its ability to effectively deal with these types of problems and further raise the level of thinking to achieve the desired outcome for both the organisation and individual. It serves to effectively engage in dealing with complex situations, ensures an increase in interaction, and eliminates ineffectiveness of immediate and obvious solutions.

3.2.5 A system model

Hitchins, (2000: 4) maintains that the idea of a system gives the impression that it is comparatively simple. Ones instinct and experience creates the awareness of what a system is. The simple representation in figure 3.1 highlights the collection of various elements and converts it from inflows (relevant parts) to outflows (useful information). People are also regarded as systems and create actions from different ideas.

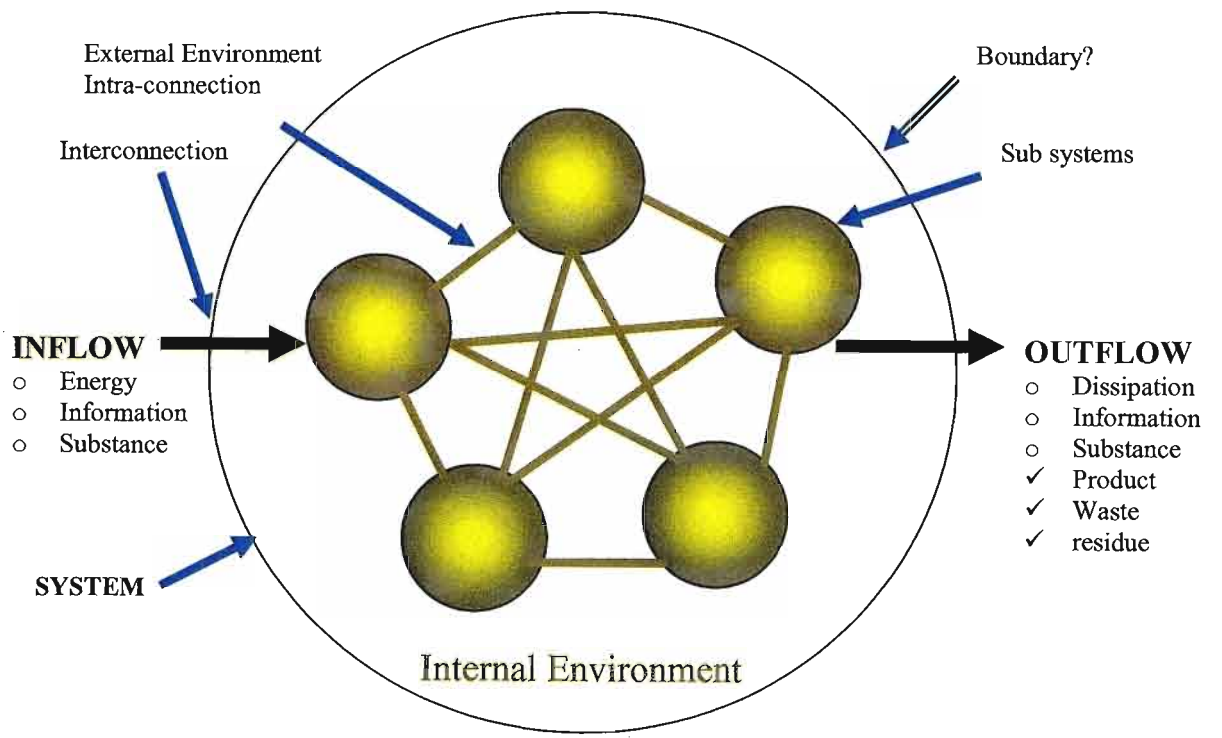

Figure 3.1: Simple representation of a system adopted from Hitchins 2000: 4

The simple representation shown in figure 3.1 represents a system to allow transforming the inflows into outflow. Contained in this diagram are structure, work, capability, utilisation, dissipation and notions of the company. It consists of a group of interacting units and their associations to jointly decrease local entropy.

3.2.6 The essence of systems

O'Connor and McDermott (1997: 26) reveal that systems thinking is "thinking in loops". The elements are directly or indirectly connected and that a change at any part of the system will have a cascading effect on the other parts. The cycle will continue and will result in affecting the very same parts that instigated the change. From this it can be said that experience is made up of feedback loops. The principle of feedback loops seems so simple, so ubiquitous, that it is lived and breathed and is taken for granted. It is hard to appreciate just how important feedback loops are, especially in the working environment. Balancing feedback on the other hand, search for a goal. To stay stable as a system, the system must have balancing feedback loops even though it remains the same.

3.2.7 Learning

O'Connor and McDermott (1997: 26) emphasize that the human life can become more fulfilling if it realises the effects of its experience and actions and avoid being passive. They maintain that learning and changing are the end results when making use of feedback from the actions.

O'Connor and McDermott (1997: 27) continue by stating that learning may have unpleasant associations for a person. It does not only refer to the fact that one passively absorbs at school level or benefiting from bad experiences and is not about formal lessons learnt, but learning from one's actions and past experiences. Learning is about generating outcomes – to bring about personal change and to become more triumphant in achieving personal goals. Mental models are created and recreated through learning.

One can learn about life, or learn by living, and while the first type of learning may be useful, and help with the second, it is the second that makes the most difference.

3.2.8 Learning as a system

O'Connor and McDermott (1997: 27) reveal that learning is something that is done constantly which declares it a process. It means change. Experience changes a person. Although learning sometimes seems to be a specialised activity that has to be supervised and take place in particular places, it really takes place all the time. Everything that is done in life involves learning, because it is the most essential feedback loop of life. Individuals learn best on their own by listening, talking, reading and writing. Learning at its simplest is a basic feedback loop.

3.3 SYSTEMS THINKING WITHIN PROJECT MANAGEMENT

High-quality project management discipline is what is required to address any shortcomings. However, having high-quality project management skills does not imply having no troubles and risks. Good project management values are types and quality of processes that are in place to remedy contingencies.

To achieve expected outcomes, according to Mochal (2002: 1), the techniques and processes of project management should be used when co-ordinating the organisation's resources. However, it must be clearly understood that there is a possibility that an organisation might not achieve the desired success rate through the use of project management. Uncertainty and complexity cannot completely be controlled because of the involvement of people within a project. Project management can also partially be declared an art as a result of its mission to be successful in its endeavour, and the creativity and flexibility it requires - it deals with the overall management of people.

It can also be declared a science since it relies on techniques and processes that are proven throughout to accomplish project success.

Interpersonal skills, excellent judgment, personal perception and people management are necessary for a project manager to satisfactorily execute a given task. The valued contributing factor to increase the rate of success is a first-class project management methodology to provide the sought after techniques, clear guidelines and well-structured processes.

According to Ryan (2001: 2), project management is defined by the Project Management Body of Knowledge (PMBOK) as the use of skills, techniques, tools and knowledge within a project with the aim to successfully achieve the project objectives – through utilising controlling, executing, planning and initiating processes as well as a process for closure. (Burke, 1999: 3) and (Kerzner, 2001: 4) tend to echo this view and define project management as:

- the use of techniques, skills, knowledge and tools in project execution to strive towards achieving the shareholders' requirements and needs (Burke, 1999: 3).
- controlling, organizing, planning, and directing of the organisation's assets to realise the ability to deliver the desired outcome (Kerzner, 2001: 4).

In response to these views, there are particular areas of concern within the project management practice. Project management literature continues to focus on "hard practice", hence reflecting the projects' nature. There is no constant format of research to positively contribute to the improvement of project management disciplines. There is a need to build models and test theories.

Kerzner (2001: 461) attempts to incorporate systems thinking in the project management practice. He maintains that project management in its entirety cannot be successful if the organisation, project teams, project manager and the client are unwilling to implement the systems approach to analyse those changes that leads to failures and victories. However, he further states that term "systems" is still widely used, in a sense that it is used in "space craft systems" and "mechanical systems".

Seddon (August 2000: 1) states that a system (for example project management) within the whole (organisation) is believed to be a strategic tool for brilliance in the competitive business environment. When project management is clearly absorbed as a system, performance improvement ability becomes vibrant and realised.

What can be gained when adopting the 'systems' thinking approach? Figure 3.2 gives a general idea of mass production thinking (Old) vs systems thinking (New).

Perspective
Top-down vs Outside-in

Design
Functional specialisation vs Demand, value and flow

Decision-making
Separated from work vs Integrated with work

Measures
Budget, activity, productivity, standards vs Purpose, capability

Attitude
Contractual vs What matters

Motivation of people
Extrinsic (incentives) vs Intrinsic (pride)

Figure 3.2: (Old) mass production thinking vs (New) systems thinking adopted from Seddon August 2000: 1

What is fundamental to project management, however, is the progressive nature of approach. Because each project is unique, it requires strategic planning (see chapter 2), taking into account the planning and control techniques available to ensure project success.

3.4 PROJECT PLANNING AND CONTROL TECHNIQUES

Project management is no small task. Each project within the project management practice has a definite beginning and end and is not a continuous process. A project itself is defined as "any series of activities and tasks that have a specific objective to be completed within certain specifications, have defined start and end dates, (probably) having funding limits, and consume resources such as money, people and equipment" (Kerzner, 1995: 2).

As mentioned in chapter one, project management makes use of the combination of different applications to achieve the desired outcome, for example, the Project Life Cycle, Work Breakdown Structures (WBS), Statement Of Work (SOW), Gantt charts, Pert charts, etc. A brief introduction/overview of these control measures will now be discussed.

3.4.1 Project management tools

Project management utilises the application of methodologies and a large set of tools and techniques to manage and successfully steer the project in the right direction. In addition, to achieve the need of both client and organisation, the different areas within a project should be well controlled by utilising a process to monitor the development of a product, scheduling and planning, resources and finance management. Moreover, project success relies entirely on the project team and leader's knowledge, skills and capabilities.

3.4.2 Project life cycle

Burke (1999: 24) maintains that a four-phased life-cycle has become the common direction for a project to follow. It is a distinctive representation that shows the level of expenditure, the progress of the project, its phases and effort levels (see figure 3.3).

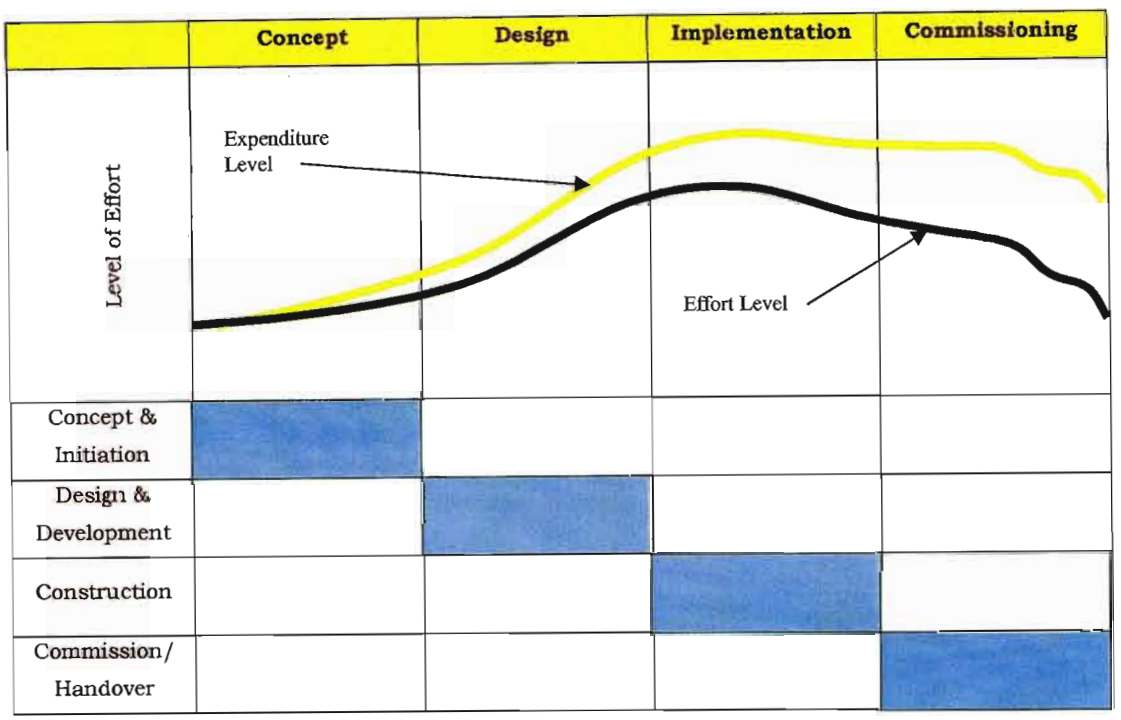

Figure 3.3: Method of a Project Life-Cycle adopted from Burke, 1999: 24

Initial and Concept Phase: The need to justify the initiation of a project. It is to consider the preferences and alternatives, and whether it is feasible to continue.

Development and Design Phase: Detailed design and development takes place during this phase. During this phase the relevant budgets, the method of procurement, resources requirements and needed schedules will emerge.

Construction or Implementation Phase: The construction of a project takes place during this phase. The desire/need that was introduced

and the detailed design in the two previous phases are now considered and applied. During this phase changes to original design are imminent due to client requests and improved product and information

Handover and Commission Phase: At this stage the building is declared ready for occupation by the builder and professional team. After the project manager accepts the standard and quality of the building, permission will be awarded to take occupation by the client.

The life-cycle of the project is broken up into a number of well structured stages to complement the management of the project. Each of these stages is also sub-divided to address the input, its operation and desired outcome.

Burke (1999: 24) maintains that there is a basic similarity in the Project Life Cycle theories which involves the following stages and actions:

- Study phase
- Design Phase
- Development Phase
- Operation Phase

3.4.3 Work Breakdown Structure (WBS)

Kerzner (2001: 573–583) states that the work breakdown structure relates plan and schedule of a project. It is a representation of the work to be done and breaks it down sub-divided tasks. The sub-division of tasks presents a well-balanced management tool to manage the extent and difficulty of a project. Figure 3.4 represents a WBS that

considers the work elements, various components, different tasks and systems of the project.

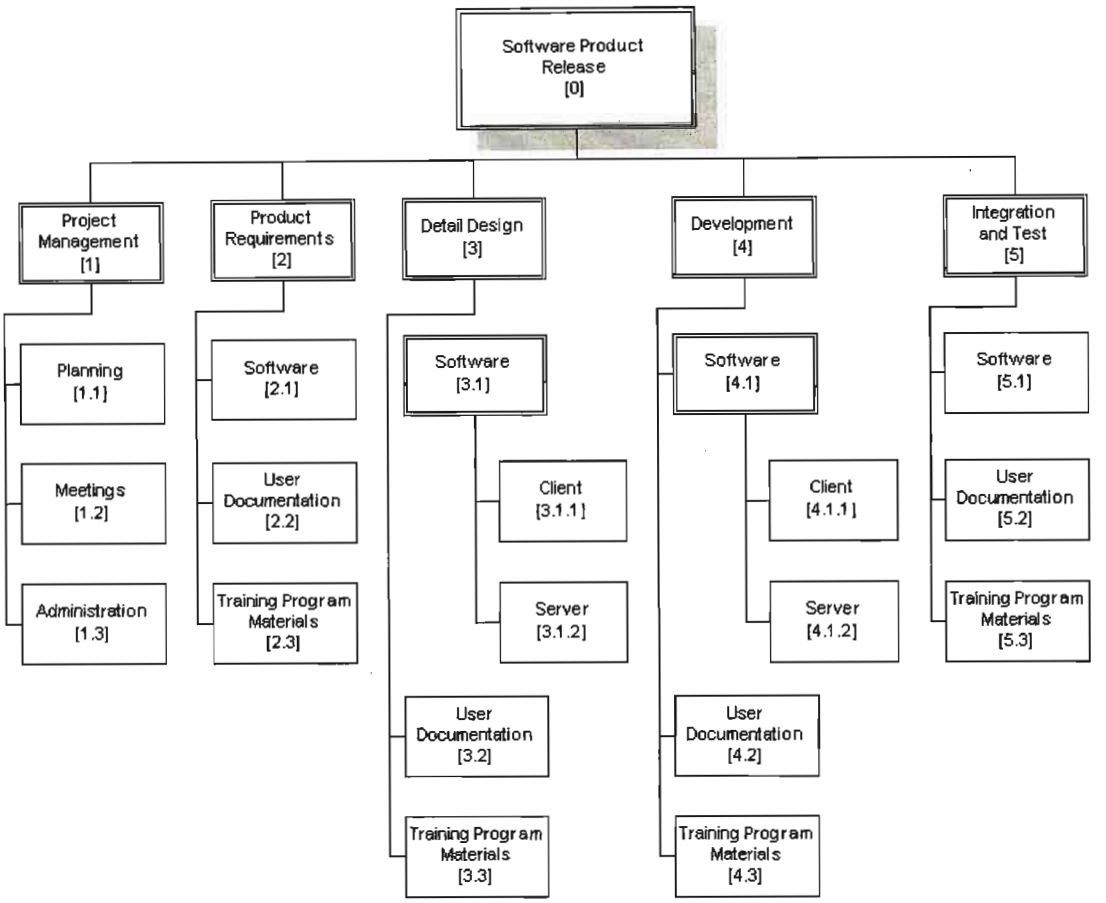

Figure 3.4: WBS method adopted from Kerzner, 2001: 583

The WBS tables the efforts needed to achieve pre-determined objectives critical to the success of the project. Furthermore, it identifies the individual contribution of resources and their boundaries that are needed to complete its mission. The WBS is extremely beneficial when dealing with multifaceted projects. There is however, a disadvantage since it fails to incorporate timeframes to the action and responsibilities. Project managers therefore make use of other tools to combat this drawback.

3.4.4 Gantt charts

Kerzner (2001: 727) confirmed that the Gantt Charts are predominantly used to plan and schedule the actions of a project and allows the project manager to record the movements of each activity. It supports the WBS by adding timeframes to individual tasks (see figure 3.5).

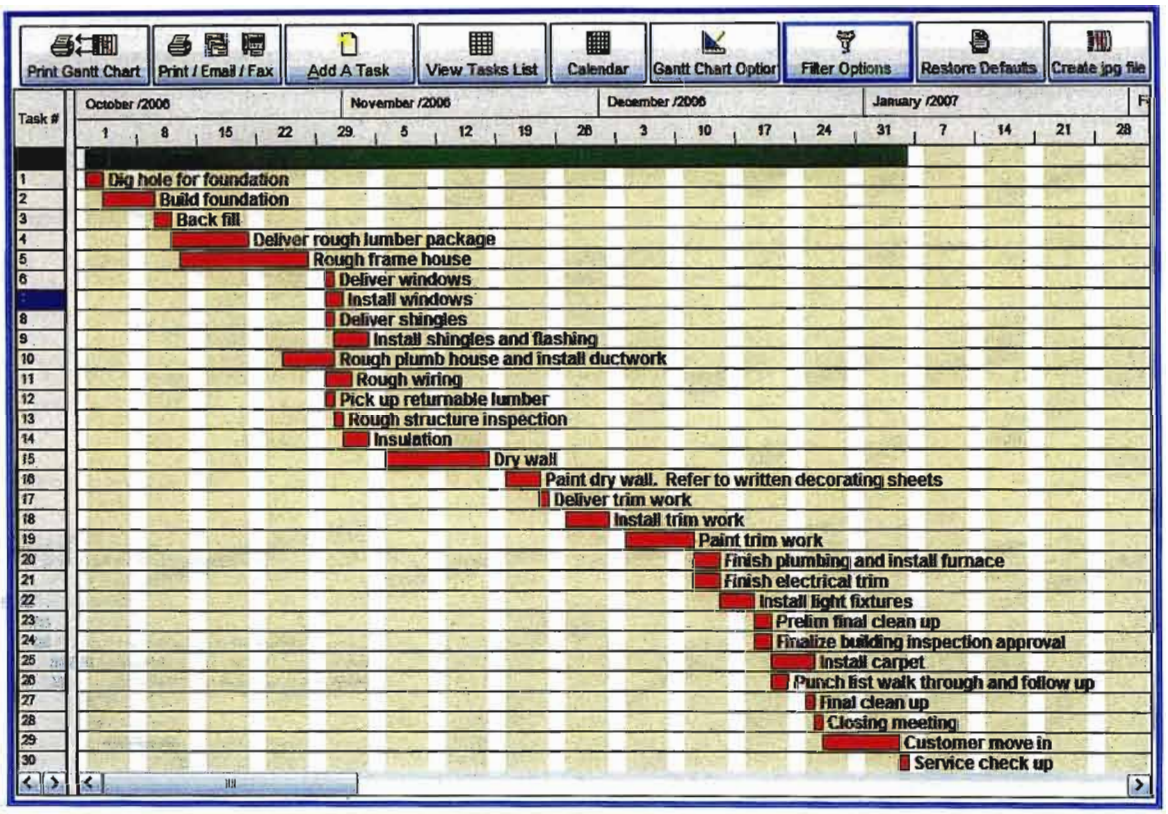

Figure 3.5: Method of a Gantt Chart adopted from Kerzner, 2001: 727

Kerzner (2001: 727) mentions Load Charts and Project Planning Charts as the two basic types:

**** Load Charts:***

This chart includes the listing of role players, equipment to be used, departments within an organisation and time scales that are required to meet the overall objectives.

**** Project Planning Chart***

This chart on the other hand, captures the individual tasks through listing the elements of work and attaches activity timeframes to implement and manage the project plan. It is easy to understand and provides the underpinning information to develop the Pert Chart. The information must therefore distinctively indicate the precedence relationship amongst activities.

3.4.5 Pert/Critical Path Method (CPM)

Interventions (India) Pvt Ltd (2001: 1) states that although the Pert and CPM methods were independently developed over fifty years ago, it bears similarity. The "Project Network" and "CPM diagram", which are both graphic representations, are used to indicate the interrelationships of all the project essentials and specify the order in which these tasks should be executed. Both methods work towards the same final date and time with no allowance for slack time. The only difference is the manner in which activity time is treated. The PERT treats activity time as random variables - focusing solely on time variables. The CPM on the other hand comprises of Time/Cost Trade-off analysis as shown in figure 3.6.

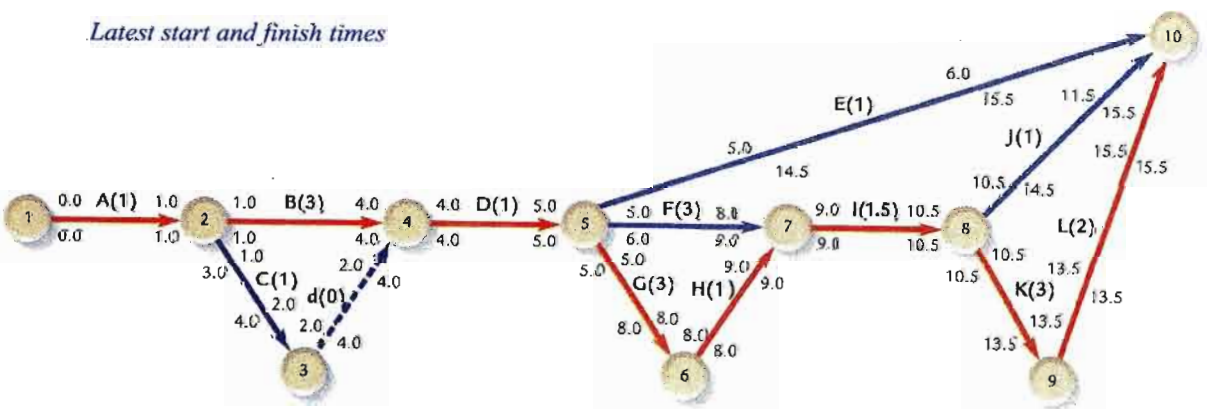

Figure 3.6: Pert/Critical path Method (CPM) adopted from Interventions (India) Pvt Ltd, 2001:1

Interventions (India) Pvt Ltd (2001: 1) furthermore states that activities such as research and development makes it difficult predict appropriate time scales. Therefore each activity should be looked at in a probabilistic manner when defining the completion time of the project:

Optimistic time estimate: the required estimated minimum time for an activity.
Most likely time estimate: the required normal estimated time for an activity.
Pessimistic time estimate: the required estimated maximum time for an activity.

Interventions (India) Pvt Ltd (2001: 1) continues by advocating that these estimates should be considered when determining the time line of each activity. The approach makes it possible to calculate the mean or expected time of all activities. The critical path can then be developed once the expected time is made known. A normal activity time distribution can be achieved by making use of the three estimate methods to determined "normal random variable", "mean" and "standard deviation", probabilities.

Throughout history of project management, according to Ryan (2001: 3), project managers have used the cost, scheduling, and quality criteria in managing their projects (see figure 3.7). Other issues and considerations were regarded as secondary.

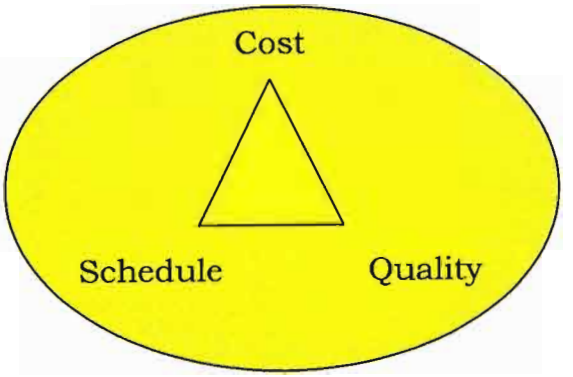

Figure 3.7: Traditional criteria for managing projects adopted from Ryan, 2000: 3

What must be realised is that the manner in which the people are handled will affect the outcome of projects. Kliem and Luden, (1995: 2) clearly state that schedule, budget and quality is not enough for the success of any project. One other important criterion is people. To progress smoothly, project management requires the four players namely, the client, senior management, project team and project manager to participate. It will remain the project leader's responsibility to ensure its success.

3.5 LEADERSHIP IN THE PROJECT MANAGEMENT CONTEXT

It is taken for granted that groups and organisations will succeed and strive under good leadership and that they will fail under poor leadership. The leader is held responsible for the success or failure of any organisation. It is also clearly visible that organisations will do almost anything to recruit and retain a successful leader. What needs to be clarified is what makes a leader effective or ineffective.

Kreitner, Kinicki & Buelens (1999:472) defines leadership as a social influence process where the project manager seeks voluntary participation from workers as an attempt to achieve organisational goals.

Porter (2001: 1) advocates that it is expected for the leader to perform the duties of a chief strategist. Involvement, empowerment and making use of people has become the general notion of business applications and thinking. Although it is extremely important, involvement and empowerment do not form part of the final operation of choice. It is required for an organisation to have a project leader that is exceptionally strong in the execution of leadership duties and portrays the ability to define trade-offs and make choices. What Porter (2001: 1) discovered was that there is a remarkable relationship between really strong leaders and really good strategies.

3.5.1 Leading versus management

Kreitner, Kinicki & Buelens (1999:473) continue by stating that leadership can be completely understood once you realise the differences between management and leadership. Managers are responsible to plan, investigate, organise and control. A leader's responsibility tends to differ - it is to motivate others, render emotional support and obtain employees' commitment to work towards a common goal. An organisation requires a leader to have the ability to generate a vision and develop a strategic plan, and for a manager to be able to implement the created vision and developed strategic plan. Leaders focus on the organisation's goals and determine expectations and images about the direction a business should take. Leaders are influential in the way their followers perceive what is attractive, probable or essential. They must lead under risky conditions and uncertainty.

Managers, on the other hand, tend to view work as a means of achieving goals based on the actions taken by workers. Thus managers make pragmatic and systematic decisions in marshalling workers, designing organisations, motivating workers, solving problems and controlling activities. These differences as shown in

figure 3.8 are summarised by Bennis as cited by Kreitner, Kinicki and Buelens, (1999: 474: 16-2).

LEADERS	MANAGERS
Innovative	Administer
Develop	Maintain
Inspire	Control
Long-term view	Short-term view
Ask what and why	Ask how and when
Originate	Imitate
Do the right things	Do things right
Challenge the status quo	Accept the status quo

Figure 3.8: Difference between leaders and managers as cited by Bennis (cited in Kreitner, Kinicki and Buelens, 1999: 474: Table 16-2).

3.5.2 Accuracy of the trait approach to leadership

A century ago there was a wide spread belief that leaders were born and not made. This was because of a theory that was searching for intellect, physical, social and personality traits, and personal characteristics that distinguish leaders from others (Kreitner et al, 1999: 475).

According to Stogdill and Mann's findings (cited in Kreitner et al, 1999: 475) many studies were conducted to identify these leadership traits. The research efforts separating these traits were in vain. Up to eighty leadership traits were identified but only five of these traits were common to four or more of the investigations. The five traits that were likely to distinguish leaders from their followers were (i) "intelligence" (ii) "dominance" (iii) "self-confidence" (iv) "level of energy and activity" and (v) "task-relevant knowledge". These traits however failed to precisely predict which individuals are capable in all aspects to become leaders in organisations. People with these traits often remained followers. These findings almost caused the demise of the

trait approach although these are once again receiving serious research attention.

3.5.3 Behavioural approach to leadership

This approach is the opposite of the Traits Theory in that it advocates that leaders are made and not born. It concentrates mainly on the behaviour of leaders. It argues that the leader behaviours can be systematically improved and developed. Many studies were conducted but only two will be briefly discussed namely: (i) Ohio State Studies and (ii) University of Michigan Studies (Kreitner et al, 1999: 477).

(i) *Ohio State Studies*

The researchers of Ohio State discovered that initiating structure and consideration were the only dimensions which portray the behaviour of a leader: and (figure 3.9).

Initiating structure: Defining and organising the role of the group members and to determine what they should do.

Consideration: Behaviour closely related to the creation of mutual trust and respect or places emphasis on the groups desires and needs. This is summarised by Kreitner et al. (1999: 477).

Consideration	Low Structure High consideration	High structure High consideration
High	- Less emphasis on structuring employee tasks. - Concentrates on satisfying employee needs/wants.	- Provides guidance about tasks. - Highly considerate of employee needs/wants.
	Low Structure **Low consideration**	**Low Structure** **Low consideration**
Low	- Fails to provide necessary structure. Little consideration for employee wants/needs.	- Emphasis on tasks. - Little consideration for employee needs/wants.
	Low	High

Intiating Structure

Figure 3.9: Dimensions of leadership behaviour summarised by Kreitner et al. (1999: 477)

(ii) ***University of Michigan Studies***

These studies came up with two dimensions of leadership behaviour, and are referred to as job-centred and employee-centred.

The results from these studies also found that successful leaders adopt employee-centred or supportive relationships with it workers, prefer group over individual methods to supervise and generally establish high performance targets.

3.5.4 The leadership grid

Blake & Mouton developed the leadership grid, as cited by Kreitner et al. (1999: 478), based on the styles of (i) employee-centred and (ii) job-centred, which in essence represents both the Ohio State and Michigan dimensions as shown in figure 3.10.

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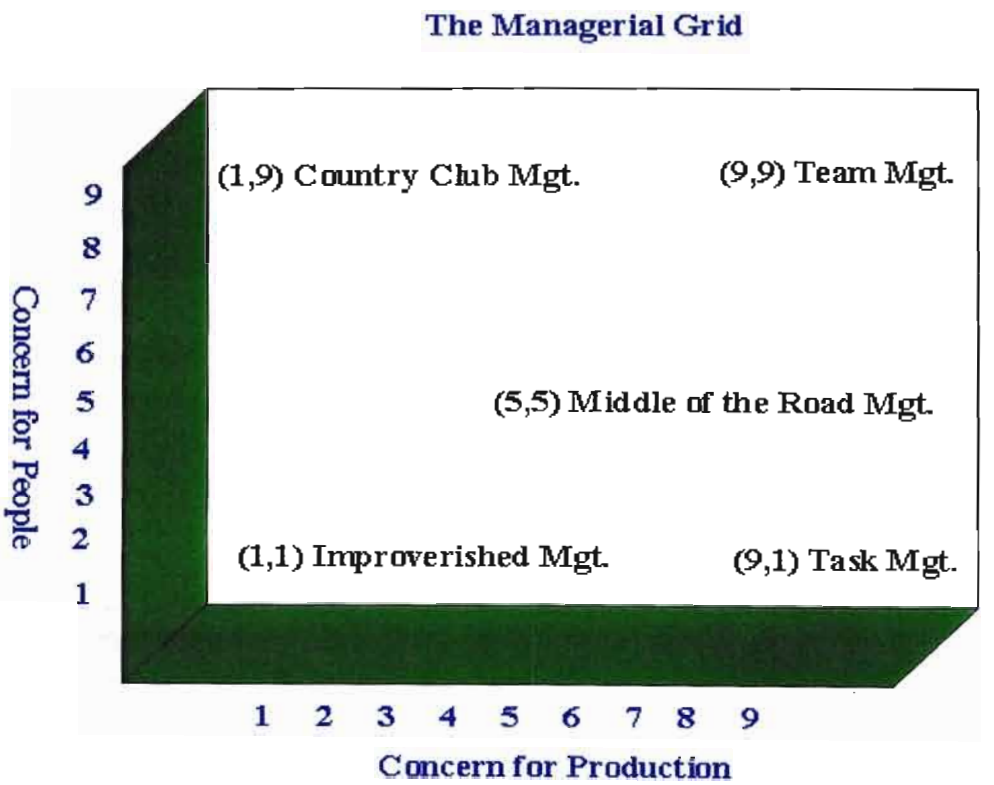

Figure 3.10: Leadership grid adopted from Kreitner et al. (1999: 478)

1,9 *Country-club management: High levels of concern for people and less concern for Production.*

9,9 *Team-management: High levels of concern for both people & productivity.*

1,1 *Impoverished management: Low levels of concern for both people & output.*

9,1 *Authority-compliance: High levels of concern for output & low levels of concern for people.*

5,5 *Middle-of-the-road management: Balance between workers needs & organisation's productivity objectives.*

The behavioural styles researched furthermore disclosed that there is no leadership style that can be declared as the best and that an immediate situation usually determines the given leadership style's effectiveness.

3.5.5 Comparative analysis of the situational theories

According to Kreitner et al. (1999: 480) the situation at hand, as proposed by situational theories, determines the efficiency and effectiveness of the particular behavioural leadership style. Changes in situations bring about different management styles.

Four situational theories will be briefly examined and compared.

(a) ***Fiedler's contingency model***

Kreitner et al. (1999: 480) state that the Fiedler's model is based on the following:

(i) Degree of influence and control of the leader.
(ii) Basic motivation level of the leader. Leaders can also be relationship motivated or task motivated. There is a similarity between initiating structure (level of concern for productivity) and consideration (level of concern for people).

This theory is also premised on the leaders to have a dominant/overriding leadership style that is reluctant to change. It is expected from a leader to balance their leadership style within a situation with the amount of control.

Situation control is composed of position power, task structure and leader-member relations. Task-motivated leaders are normally efficient under situations of both low and high control whereas relationship-

motivated leaders appear to be more effective when they have reasonable control over a situation.

(b) *Path-goal theory*

The behaviour of leaders is normally found to be adequate by their subordinates if it is viewed as a beneficial source of future or immediate satisfaction. The Path-goal theory reveals that an employee will naturally accept a leader's behaviour when it is viewed as a source of gratification. This theory deals with pathways to goals and rewards.

Kreitner et al. (1999: 483) further believe leaders can show signs of different leadership styles. Four leadership behaviours have been identified, namely:

Directive leadership	Provides direction to workers about the required outcome, how to schedule work and to maintain standards and performance.
Supportive leadership	Being friendly and show concern for the needs of employees.
Participative leadership	To consult with workers and use their ideas in decisions making.
Achievement-oriented leadership and abilities.	To encourage workers to do their best (high levels) by showing confidence and setting challenging goals.

The implications for this theory are that leaders possess and use more than one style of leadership. Managers/leaders should always strive to apply new behaviours when it is called for by the situation.

(c) *Situational leadership theory (Hersey & Blanchard)*

This theory asserts that the behaviour of an effective leader depends entirely on the readiness level of its followers. Kreitner et al. (1999: 484) defines readiness as the degree in which a follower demonstrates the willingness and ability to successfully complete a given task. Willingness comprises of a mixture of motivation, commitment and confidence. According to Robbins (1997: 377), situational leadership makes use of two leadership dimensions, namely: relationship and task behaviours. However, this theory continues by considering the two as either low or high and puts them together to form four different leadership styles as described in figure 3.11.

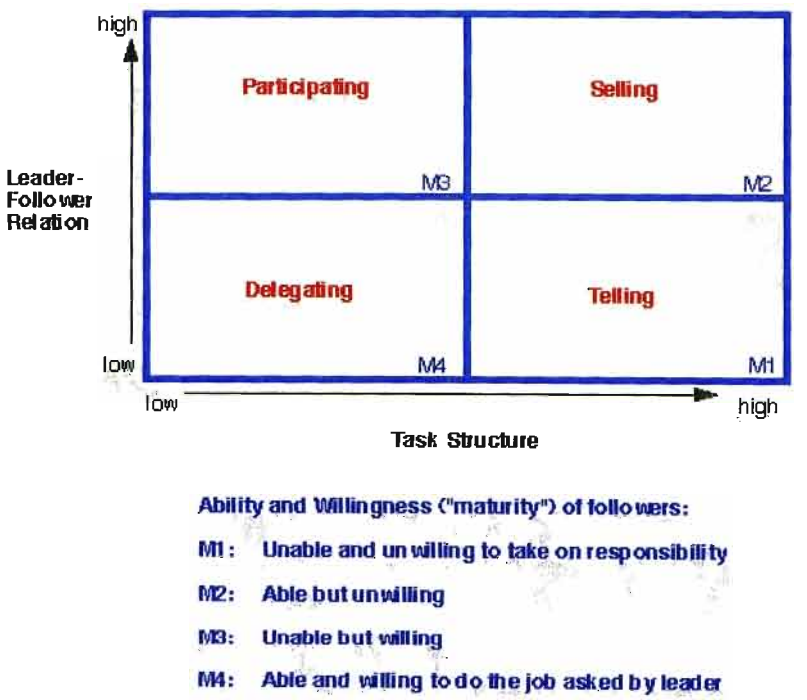

Figure 3.11: Task and relationship behaviours model adopted from Robbins, 1997: 377

Robbins (1997: 377) continues by advising leaders to progressively move their management style from M1 (tell) to M2 (sell) to M3 (participate) and finally M4 (delegate), as the readiness of the follower increases.

(d) ***Leader – member exchange theory***

This theory asserts that leaders develop an elite relationship with each employee (one to one). These relationships qualify as either in-group or out-group relationships (Kreitner et al, 1999: 480).

In-group

These employees are trustworthy, receive a lot of personal attention, and benefit from special privileges.

Out-group

As a result of formal authority interactions, these employees receive a lesser amount of the leader's attention, less privileges and rewards from the leader and have greater secondary relations.

It is evident that leaders prefer in-group over out-group members because of their compatible characteristics (sex, personalities and age) or their higher competence levels. One should try and identify commonalties among the situational leadership theories. It is straightforward, appealing and important for its explicit recognition that the employee's ability and motivation are critical to the leader's success, but it is not fully supported by research.

> Leader-members exchange theory looks at leadership from a different angle. It focuses on out-groups and in-groups. Given the evidence that in-group employees display greater performance and fulfilment than out-group members, the theory provides valuable insight for predicting leader effect as long as it is known whether the employee is an "in" or an "out". The path-goal model offers a structure to predict and explain the leadership effectiveness. It recognises that the success of leaders is reliant on adjusting their style to the current environment and to the individual follower's characteristics.

The path goal theory's emphasis on task structure is consistent with the Fiedler contingency model. Its theory of recognising individual characteristics is also consistent with Hersey and Blanchard's focus on the experience and ability of followers (Kreitner et al, 1999: 480).

Businesses are very different to the way they were ten years ago. In South Africa this change is being magnified by the incredible political, social and economic transitions, which started in the 1980's and is continuing at the start of this new century (April, Macdonald and Vriesendorp, 2000: 25).

Beerel according to April et al. (2000: 25), maintain that the new required leadership will not be provided by the 'taking charge' elite, but will emerge from the capacity that lies within each and every person. It will be a leadership that does not presume to have all the answers, but one that seeks to empower others to work on their own problems.

3.6 CONCLUDING REMARKS

In South Africa, major strides have been made towards a better future, but to strive towards the next ten years, project leaders will need to connect new ideas and approaches with better values to outperform competition.

Leading commands leaders to test, experiment and make some mistakes during the process. It requires the project manager to keep asking questions to encourage a team to continue thinking. In the long term it will develop all the project team members.

Furthermore it expected from the project manager to identify the weaknesses and strengths of the team members – including the project manager himself, and then create methods to conquer the

weaknesses and to improve the strengths to adapt to the changing environment.

Zaleznik, according to April et al. (2000: 83), makes it clear that no aspect of corporate life is indifferent to strategy. Every problem leads to strategic solutions and the challenge of developing or re-establishing a clear strategy often depends rightly or wrongly on leadership.

This chapter included various factors to be considered in formulating a project management strategy. To assist in the author's recommendations, an overview of the current practical situation of NPWD will be given in the following chapter.

CHAPTER FOUR
THE CURRENT PRACTICAL SITUATION IN NPWD. AN OVERVIEW OF NPWD: PROJECT MANAGEMENT ACTIVITIES

4.1 INTRODUCTION

NPWDs' vision is to be "the leader in Africa and the developing world in the provision and management of state property and implementing Public Works programmes". Its mission is to provide infrastructure in a way that influence and stabilise the property and construction industries and to empower communities, creates jobs and develop South Africans.

The aim is to promote ownership of fixed properties by previously disadvantaged individuals including the promotion of emerging contractors by giving previously disadvantaged contractors opportunities to tender for maintenance contracts.

In this chapter the author will briefly explain the current practical situation of NPWD's project management activities and will then be able to compare these activities with the theory in the literature study in chapter two and three. Emphasis will therefore be placed on the manner in which a project in NPWD is initiated and structured, in terms of the use or non-use and applicability of proper project management planning and control techniques.

4.2 ORGANISATIONAL STRUCTURE AND WORK BREAKDOWN STRUCTURE

The design activity in Operations Project Management: Planned and Unplanned Maintenance, has one overriding objective: to provide the type of products and services, which will satisfy Client Departments. The client submits a list of needs and requirements to the Client Department's Head, who will inform the Operations Department.

A selected contractor executes the service according to the department's regulations (see figure 4.1).

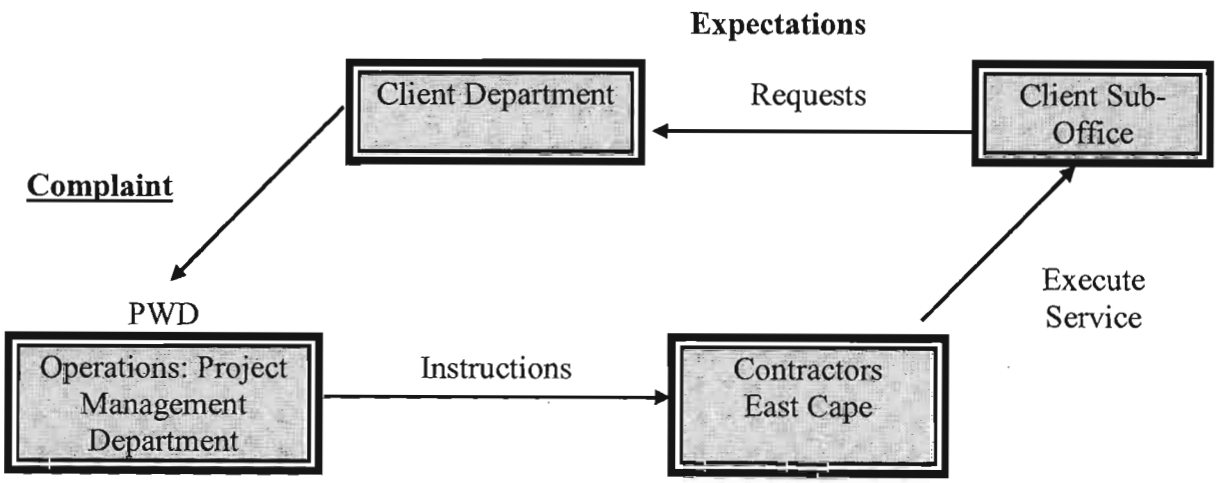

Figure 4.1: Client Department's feedback loop

As mentioned in chapter one, Public Works Department: Operations Project management Section is responsible to render a service to South African Police Service, Justice, Correctional Service and the Defense Force, as well as involving the community to execute these services in the Eastern Cape Region.

4.2.1 The organisational structure

Annexure one shows the current organisational structure within NPWD of the Eastern Cape. Kerzner (2001: 98) defines an organisation as groups of people who must co-ordinate their activities in order to meet organisational objectives. The coordination function requires strong communication and clear understanding of relationship and interdependencies among people. Kerzner (2001: 98) further states that organisational structures are dictated by such factors as technology and its rate of change, complexity, resource availability, products and/or services, competition, and decision-making requirements. It must however be kept in mind that there is no such thing as a good or bad organisational structure; there are only appropriate and inappropriate ones.

4.2.2 Project flow and responsibilities

Annexure two shows an exact representation of the current project flow and responsibility.

The client department submits a list of needs and requirements to NPWD's Client Department. In order for the Client Department to give feedback to the Client, the requests are then forwarded to the Operations Department to do the necessary investigation and submit their findings to the Client Department. The Client is then informed of the costs and only after the approval of all related funds, are the requests returned to Operations Department to commence with the projects.

At this point a project is assigned to a projects manager, who in turn must do the necessary selection of a project team, managing the team, do the required administration and lead and control all related functions until the completion of the project. As stated in chapter

three, not all projects that are completed on time, within budget and with deliverables that meet the specified performance standards, are necessarily successful. Benefits to the community and to other stakeholders, client satisfaction, organisational learning, development and financial benefits should also be achieved.

It is also important to mention that project management was only officially introduced to NPWD five years ago, which resulted in selected project managers concentrating more on management of the project rather than leading the project team to successfully achieve pre-determined organisational objectives.

4.2.3 Client services

The staff at Client Services consists of five Client Service Managers with minimum technical background. Their lack of technical abilities results in various problems which affect the process flow as well as the overall project delivery. For example, Department of Justice registers a service which is coupled with an estimated cost. The client service manager prepares a planning instruction as requested by the Client and forwards it to the Project Manager. The information on the planning instruction reflects the following:

- The file number;
- reference number (Works Control System (WCS) number;
- description of service;
- budget allocation;
- contract period; and
- if external consultants will be required to form part of the project team members.

In most cases the planning instruction is returned to the Client Service Manager with a substantial change in estimated cost. This will then require additional funds to be approved by the Client.

4.2.4 Emerging Contractors Development Programme (ECDP)

The Emerging Contractors Development Programme (ECDP) Division is responsible for registering emerging contractors, mostly referred to as Previously Disadvantage Individuals (PDI's). The contractor must be registered as a PDI before he or she qualifies for equity ownership points. The tenders are adjudicated by using a system, which awards point on the basis of:

- the tender price, and
- the status of the enterprises in terms of the ownership

This transformation process requires NPWD to face many challenges. Unqualified people register as contractors; established contractors register as PDI's; some contractors report that they are not being nominated for tenders; and lack of technical knowledge.

4.3 PROJECT MANAGEMENT CONSTRAINTS

As mentioned in chapter one, most client departments experienced problems with PWD projects related to time and cost and to the inadequacy of dispute resolutions. The current project delivery model has seven checks within the operation of the process before the contractor can commence duties. It is with no doubt that PWD have well-educated senior management officials who have the necessary knowledge to successfully implement system theories and practices available to promote effectiveness and efficiency.

Drucker (1990: 81) maintain that non-profit organisations tend not to give priority to performance and results. Yet performance and results are very important and far more difficult to measure and control.

Although the overriding objective is to provide the type of products and services that will satisfy client departments, operations unplanned maintenance fails in their mission for the following reasons:

- Operations Unplanned Maintenance are being referred to as the "please wait department" by both the clients and the contractors.
- Time delays in project delivery.
- Quality of contractor's performance not being accepted by the client.
- Lengthy administration processes.
- Lack of commitment to ensure overall project success.

4.3.1 Project Manager

The Project Management Section is one of the core processes of operations. The transformation of the construction industry policy of the Government, which refers to the involvement of the PDI's, results in a decline of quality in the end product and increases the cost and dissatisfaction of client departments. The time between the complaint and the end product is increased substantially. Depending on the scope of work to be executed, client departments sometimes wait weeks or months before the contractor arrives on site. The NPWD face many challenges in the form of criticism by the client communities and departmental contractors.

Bennis (2000: 1) clearly states that to inspire people into higher levels of teamwork, there are certain things the project managers must be,

know, and do. These do not come naturally, but are acquired through continual work and study. The best project leaders are continually working and studying to improve their leadership skills.

4.3.2 Procurement and contractors

Contractors (PDI's) are not always available, and sometimes are not financially capable to commence immediately with the project when an emergency repair is required. This results in the tender being cancelled and must be returned to the Procurement Division to re-invite tenders. It further results in unhappy client departments.

4.4 PROJECT DELIVERY

Project delivery is more commonly referred to as the "way" a project meets the expectation for cost, quality and schedule provided by the owner/user. However, NPWD is faced with a further dilemma - that of developing emerging contractors, community development and construction industry transformation. For this reason a project can only be regarded as successful when all the above tasks have been fulfilled.

When compared to the factors revealed in literature that contributes to the successful project management, it is evident that too little emphasis is being placed on the issues that really contribute to a successful project in NDPW. Costs, duration and quality of a project are being regarded as the only measurable issues.

4.5 CONCLUDING REMARKS

In order for NPWD to achieve its overriding objective - satisfying it's client departments, and to adhere to the Government's policy to involve the PDI's, it is understandable that many changes should be

considered. The design activity in PWD can be viewed as a transformation process in the same way as any other operation and is judged in terms of it's quality, speed, dependability, flexibility and cost.

In this chapter, the author gave a brief overview of the current situation within NPWD in order to identify areas of concern, which will be included in the intervention exercise. A prior intervention revealed that management overlooked the importance of the idea of system practice and how it intended to find out how to use system concepts in trying to solve problems. It is important to think of several ways of doing the same thing, and each design should be screened to satisfy the high quality demand of any customer or client.

The following chapter will detail the methodologies used for the research study, describe the structure of the questionnaire, the process of the brainwriting session and the analysis of the biographical information of the respondents.

CHAPTER FIVE
RESEARCH METHODOLOGY AND ANALYSIS OF BIOGRAPHICAL INFORMATION

5.1 INTRODUCTION

Research requires the collection and interpretation of data so that the problem that initiated the research may be resolved. However, during the data gathering and interpretation one needs to consider the whole and not the isolated issue to expect to achieve desired results.

The aim of this chapter was to describe the approach that was adopted in the empirical study, the research design and the development and structure of the questionnaire. What will also be described is the brainwriting session (systems thinking approach), which contributed positively to the final product.

5.2 RESEARCH DESIGN

Leedy (1997: 3) and Leedy and Ormrod (2001: 5) define research as the systemic process of collecting and analysing information with the objective of increasing an understanding of the subject concerned. They further state that the design process is the planning of the research and includes the visualisation of the data and the problems associated with the use of those data in achieving the outcomes of the research project - the research design is the key element in its success.

Many researchers believe that all inquiries start out as quantitative (Leedy, 1997: 155). Lauer and Asher (1988) according to Leedy (1997:

156) state that conducting qualitative descriptive research is a requirement for all types of experimental research. He further states that qualitative research has grown out of diverse disciplines, and is marked by typical research methods, theories, issues, and interests.

Aronson (2003: 1) states that the approach of "systems thinking" differs fundamentally from that of traditional methods of analysis. The traditional analysis method focuses on unravelling the individual pieces of the study; in actual fact, the term "analysis" originates from "to break into constituent parts." Systems thinking, on the contrary, focuses on how the studied subject works together with the other parts of the system - the elements that work together to construct behaviour – and forms part of the system. This approach adopts the expansion of its view and considers large volumes of interactions instead of separating the smaller parts of the subject being studied. The outcomes of this approach sometimes generate noticeably different end results than those concluded by the traditional method of analysis. This happens particularly when the subject being studied is vigorously intricate or where there is an enormous amount of feedback from external, internal and other sources.

Furthermore, Aronson (2003: 1) points out that the nature of "systems thinking" allows it to be extremely successful when dealing with difficult and complex problems – the problems with complex matters, that are dependent on the past or dependent on others actions, and those problems inherited from ineffective management within the group. This approach reveals some examples of areas where it was found to add value, namely:

- Helping many role players with complex problems and make it possible for them to see the "big picture";
- Problems that have the tendency to reappear as well as those through past unsuccessful efforts;

- Where the natural and competitive environment are disturbed by the action; and
- Where solutions to problems are not clear.

The overall purpose of this dissertation, therefore, is to incorporate systems thinking in identifying project management strategies, activities and principles to enhance the project management effectiveness and efficiency of NPWD.

Chapter two included an overview of project management strategies, procedures and related issues and highlighted the impact of system thinking in developing strategies.

In order to successfully design the study it was necessary to re-look at the main problem and sub-problems as outlined in chapter one. The main problem researched in the study was:

What project management strategies, activities and principles will enhance the ability of National Public Works of the Eastern Cape to ensure continuous successful project delivery?

To assist in resolving this main problem, the study examined the sub-problems namely:

Sub-problem one

- Since the project management approach is fairly new in NDPW, various individual and sectional strategies were employed to ensure successful delivery of projects. These strategies however failed to satisfy the client departments. It therefore became necessary to implement changes in the way projects are managed. In order to achieve this it will be necessary to consider what the literature of prior research reveals as the

necessary elements for the development and implementation of a successful project management strategy.

Sub-problem two

- The current standard procedure in NDPW is that NDPW Head Office develops strategies and the Regional Offices are expected to implement those strategies. Limited input into the development of the strategies is given by the Regional Offices. In order to assess whether these project management strategies required regional input, the operational staff and management team of National Public Works Department of the Eastern Cape will be approached to gauge their viewpoints.

Sub-problem three

- Based on the announcement made by the COO, it became evident that the lack of participation from the operational staff and the management team of the National Public Works Department of the Eastern Cape into the formulation of strategies contributed to the failure of the strategies. It is therefore imperative to involve operational staff members in all project delivery strategies.

Sub-problem four

- The criticality of retaining client departments necessitated the input from all client departments to assist the National Department of Public Works in their undertaking to provide a service excellence and to exceed their expectations.

The purpose of this chapter is to discuss the methodology to be used in finding answers to sub-problem two, three and four. The analysis of the findings of these three sub-problems, together with the information gained from the literature research to resolve sub-problem one, will resolve the main problem.

5.3 DATA COLLECTION

Leedy and Ormrod (2001:197) state that a common instrument for observing data beyond the physical reach of the observer is the questionnaire. They suggest that using a questionnaire has the advantage of being completed by a great number of participants, and includes those who reside far from the researcher. However, they also argue that questionnaires have drawbacks such as not being returned, being dependant on the reading and writing skills of the respondent and misinterpretation of questions.

Salkind (1997:149) discusses what makes questionnaires work. He suggests that the questionnaire should not make unreasonable demands on the respondent. The researcher should, therefore:

- not ask personal or offensive questions and not expect the respondent to answer lengthy questions that make unreasonable demands on time, expense or effort;
- design the questionnaire so as to accomplish the goal and not collect unrelated information. The questions should be direct and to-the- point and not be veiled or disguised;
- choose respondents who have the knowledge and skills required of them;
- formulate questions that are of interest to the respondents so as to encourage them to answer all the questions; and
- be sure that the questionnaire is the best instrument to gather the required information.

Hague (1994: 11) maintains that questionnaire design is one of the most important building blocks of market research. To achieve the results needed to solve the problem highlighted in chapter one, a questionnaire was developed comprising all the relevant aspects identified by the literature survey.

5.4 BRAINWRITING SESSION

Over and above the questionnaire, a brainwriting session with representatives of the client department was scheduled and held on the 21st July 2003 where each representative had to identify critical issues which they believe hinder the efficiency of NPWD's operations.

This systems thinking approach provides teams with a method for generating and sharing ideas in writing. The silent nature of the brainwriting process increases the likelihood that everyone will participate and build on each other's ideas (Ryan, 2001: 19).

The aim of the exercise was to develop concepts from which idea cards would be developed. After the completion of the cards, the relationship among the concepts would be determined to identify the primary reasons for NPWD's in efficient service delivery.

Senge (1994), according to Ryan (2002: 20), explains how ones personal paradigms or mental models are frequently developed from breaking down large problems issues into smaller controllable pieces. Actions and events become mentally isolated when a problem is broken up into smaller manageable parts because of it being alienated in terms of space and time. If mental models are recognised, the organisation and its stakeholders will strongly protect them and will passionately prevent any new ideas to be imposed. The aim is to overcome resistance to learning.

5.4.1 The process of brainwriting

Serving Educational Facilities Professionals (2003: 1) advocates that brainstorming/brainwriting is regarded as a tool to facilitate creativeness. This process embarks on using the team's joint intelligence, skills, and capabilities effectively. For this process to be

successful and be productively creative, the following process should be followed.

- Each participant is given a pad of 3x3 post-its.
- They are instructed to write their ideas on the post-its. Black ink pens work best.
- The participants are seated around a table within reach of each other. They must be silent during the brainwriting exercise.
- Each participant is to record one idea in three to eight words on a post-it.
- When each post-it is completed, it is to be placed to the participant's right side. They can be strung together for convenience, but the stringing must not hide any writing.
- When a participant runs out of ideas, he or she reaches to the left, and picks up the post-its of the neighbouring participant and reads them. Then, using a new post-it, the participant writes down ideas that the notes have stimulated. Individuals are not allowed to write on any existing post-its.
- The process is complete when idea generation ceases.
- The post-its are then collected and processed by finding the vital few most important ideas, either by using an Affinity Diagram and/or Interrelationship Diagram, both of which are discussed hereunder.

What is regarded as important is that the brainstorming rules must be strictly followed to ensure a desired outcome. The responsibility lies with the facilitator to make absolutely sure that the sessions are progressing smoothly and is in line with the set rules (Serving Educational Facilities Professionals, 2003: 1).

5.4.2 Affinity diagram

Skymark (2003: 1) states that the affinity diagram was not at first meant to manage quality but has developed to become the most used tool for planning and management. The purpose of this diagram was to realise significant groups of information/ideas from a set sample. It is therefore important to allow the groupings to appear naturally and not according to predetermined groupings, by making use of "right side of the brain".

Methuen (2003: 1) defines the affinity diagram as "a group decision-making technique designed to sort a large number of ideas, process variables, concepts, and opinions into naturally related groups". They are generally linked by making use of an effortless concept. The intention is to arrange the list of information and ideas into groups by following the guidelines as listed hereunder.

- Make sure that the information and ideas are fully expressed with sentences or phrases.
- Minimise dialogue during the sorting of ideas – discussion should take place when the header cards are developed.
- Try to make use of five to ten groups/clusters.
- Avoid large groups – the groups must be balanced in terms of numbers.

Skymark (2003: 1) continues by stating that an affinity diagram's purpose is to convert a brainstorm into something credible to eliminate any difficulty when dealing with it. The affinity diagram is recommended when using thoughts or facts that are indecisive and needs to be structured, to overcome paradigms or pre-existing ideas, to clarify ideas, and to create unity within a team. The requirements for an affinity diagram are, a sorted brainstormed list, creation of affinity sets - the ideas coming from the brainstorm, and to create groups with similar ideas by using the following guidelines.

- Group fast ideas together.
- There is no need to explain why they must be in the same group.
- Address uncertainties of ideas - clarify.
- Place an idea into multiple sets if it is found to be appropriate.
- Aim for smaller sets.
- Break down large sets more precisely.
- After sorting the ideas, titles for each affinity set must be entered.

5.4.3 Interrelationship

Quest Training Guide (2003: 1) defines an interrelationship "as a tool that allows a team to systematically identify, analyze, and classify the cause and effect relationships that exist among all issues so that key drivers and outcomes can become the focal point of an effective issue". An interrelationship is used for the following reasons:

- To encourage the members of the team to consider several directions when applying their minds.
- To discover the causes and effects amongst the issues.
- To ensure that the key issues are identified through the process instead of being forced by powerful/dominant members.
- To assure that members identify possible causes even if it is not listed.

5.5 DESIGN AND STRUCTURE OF THE QUESTIONNAIRE

The body of the questionnaire (Annexure three) comprised of two sections: The first section dealt with project management strategy. Section two concentrated on the structural and infrastructural decision areas, which assisted in identifying project management strategies to ensure continuous successful project delivery. A section

for general comments was provided to allow the respondent to add additional information, which they believe, could be used.

Leedy and Ormrod (2001: 202) raise the concern that although questionnaires seem easy to develop, they can be tricky to construct and difficult to administer. One false step can lead to un-interpretable data or an abysmally low return rate. Twelve guide points have been listed, as suggested by Leedy and Ormrod (2001: 202) that should be considered when developing a questionnaire.

- Keep it short.
- Use simple, clear, unambiguous language.
- Check for unwarranted assumptions implicit in the questions.
- Word the questions in ways that do not give preferred or more desirable responses.
- Check for consistency.
- Determine in advance how you would code the response.
- Keep the respondents' task simple.
- Provide clear instructions.
- Give a rationale for any items whose purpose may be unclear.
- Make the questionnaire attractive and professional-looking.
- Conduct a pilot test.
- Scrutinise the almost final product carefully to ensure it addresses your intended needs.

Most importantly, as emphasised by Leedy and Ormond (2001: 203), is the need to ensure that every question is essential in addressing the research problem or concern at hand.

The layout of the questionnaire is an integral part of its success, as Gillham (2000: 37) states, " the visual packaging of your product may

put people off or invite them into it, but it also needs to lead people into correct or appropriate use."

A questionnaire was compiled from the literature study on project strategies, activities and principles. The questionnaire was then sent to both officials of NPWD and representatives of the four major client department representatives. The questionnaire was distributed by means of mail, fax and e-mail. The questionnaire was designed in such a manner to identify specific areas in operations, which require attention. A section for general comments was provided to allow the respondent to add additional information, which they believed, could be used. The results of the questionnaire were used to identify critical areas within the project management department.

The questionnaire was developed by using the information obtained from the literature study in chapter two and three. The questions were selected to address each of the factors impacting on the efficiency of NPWD: Operations: Project Management of the Eastern Cape.

The instructions of the questionnaire were to ensure that all the respondents were treated equally. Riley, Wood, Clark, Wilkie and Szivas (2000: 82), according to Berry (2001: 1), state that there may be open and closed questions. A closed question is where responses are restricted to a small set of responses that generate precise answers. Open-ended questions on the other hand do not impose restrictions on the possible answer but are difficult to aggregate and computerise. The questions were kept as short and simple as possible in order to encourage responses.

The respondents were asked to rate each performance indicator as listed on the questionnaire, based on its effectiveness and efficiency as well as their level of importance.

The respondents were reassured that all information gained was strictly confidential and would only be used for research purposes.

5.6 THE USE OF STATISTICS TO ANALYSE A QUESTIONNAIRE

Statistics as described by Fitz-Gibbon and Morris (1991: 9) is a mathematical approach to seek answers from a set of diverse data or facts. It is a tool used to transform large amounts of data into a form of usable information.

According to Singleton, Straits and Straits (1993: 429), three statistical properties should be examined to determine the distribution of a set of data. These properties are central tendency, distribution and shape.

The measures of central tendency include the mean, median and mode. Singleton et al. (1993: 429) explain that the "mean" is the arithmetical average calculated by adding up all the responses and dividing by the total number of respondents. The "median" is the midpoint in a distribution, which is the value of the middle response. The "mode" is the value or category with the highest frequency of occurrences.

The main purpose of statistics is to retrieve the numbers that express the nature of events, processes, achievements and attitudes that need to be explained. It tends to compress comparisons, performances and opinions and summarises the numbers to develop a clear understanding.

5.6.1 Statistical packages

Statistical packages are suites of computer programmes that are designed to analyse statistics (Wikipedia, 2003: 1). It is designed to

assist people in obtaining results of statistical tests and procedures, without the need for low-level numerical programming. The majority of available statistical packages generally provide options to manage data. According to Wikipedia (2003: 1), SPSS for Windows is regarded as one of the most technically comprehensive packages on the market today.

For the purpose of this study the programme SPSS Version 13.0 for Windows was used to analyse the findings. The information obtained from the questionnaire was tabled in the same format as the survey questionnaire.

5.7 CONDUCTING THE EMPIRICAL STUDY

In this study, data was firstly acquired through literature and secondly by questionnaires. Questionnaires were found to be the most efficient way of obtaining the desired information from the chosen respondents. In addition to the questionnaire, a brainwriting session with the representatives of the client departments also contributed to the final product. A meeting was scheduled for the 21st July 2003 with representatives from each major client department (see Annexure five).

E-mail proved to be the most cost-effective and time-saving means of distributing the questionnaires. The results of the questionnaire were statistically analysed using the SPSS for Windows programme.

5.7.1 Pilot Study

Schnetler (1984: 87), according Leedy (1997: 143), states that all questionnaires should be pretested on a small population to test whether there are any items that the respondents may find difficult to understand. Once the draft has been pretested, it may be necessary to refine it.

The questionnaire was subjected to a pilot study in order to measure the accuracy with which the questions had been formulated. A group of five operational staff members from the Port Elizabeth office were asked to participate in the pilot study exercise. No problems were encountered by the members in the pilot study. They believed that the questions were very clear in order to give their findings.

5.7.2 Administration of the Questionnaire

The questionnaire was faxed, e-mailed and hand delivered to the operational staff member and representatives of the four major client departments. The questionnaires were sent under cover of a letter (see Annexure four) to assist with the responses, and were sent out between the 10th and 12th July 2003.

The purpose of the covering letter was to provide the following information:

- The intention of the research.
- The reason and purpose of the questionnaire.
- The importance of the respondent's feedback.

Annexure three is an example of the questionnaire that was sent to all respondents.

5.7.3 Brainwriting Process

The aim of the brainwriting session was to identify issues members believed hindered the efficiency of NPWD's project management division. Representatives of each major section were asked to participate in sharing ideas that could contribute to the effectiveness and efficiency of National Public Works Department's project management.

5.7.4 Response rate

Considering the new trend of privatisation within the public sectors, it was anticipated that the response to the questionnaire would be very good. On the 10th, 11th and 12th July 2003, a total of 50 covering letters (Annexure four) together with questionnaires (Annexure three) were hand delivered, faxed and e-mailed to operational staff members and representatives of the major client departments. By the 25th July 2003 a total number of 33 responses were received (66% of the total expected responses). A diagrammatic representation of the response rate is shown in figure 5.1.

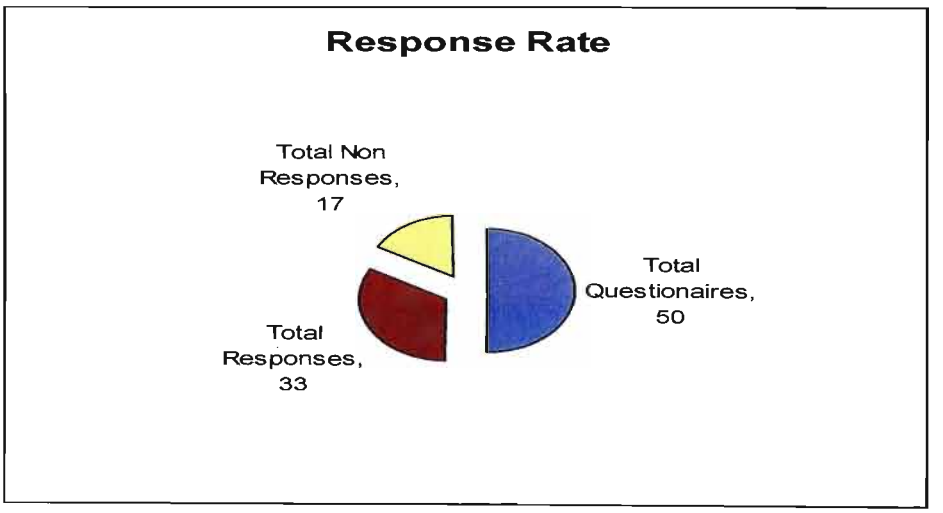

Figure 5.1: Response rate

5.8 ANALYSIS OF BIOGRAPHICAL INFORMATION

An analysis was performed on the 33 responses. Table 5.1 and figure 5.1 depict the responses according to client departments and operational staff members of NDPW.

Department	No. Issued	Respondents	
		No.	%
NPWD: Operational Staff Members (PE)	15	12	80%
NPWD: Operational Staff Members (Umtata)	11	8	72.7%
South African Police Services (SAPS)	6	3	50%
South African National Defence Force (SANDF)	6	3	50%
Department of Justice (Justice)	6	4	66.7%
Correctional Services (CS)	6	3	50%
Total number of questionnaires issued	50	33	66%

Table 5.1: Results obtained from the analysis of data collected

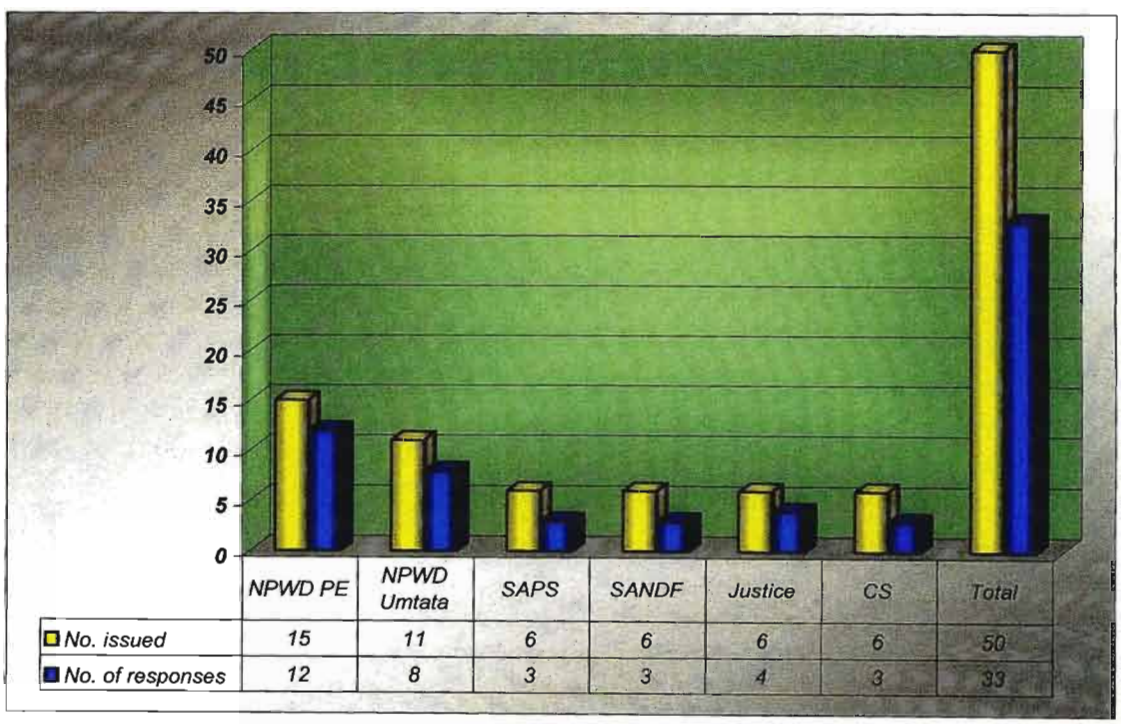

Figure 5.2: Results obtained from the analysis of data collected

	Client departments	Staff members
Questionnaires issued	24	26
Responses received	13	20
Percent responses	54.17%	76.92%

Table 5.2: Biographical response rate

Of the respondents detailed in table 5.1, table 5.2 and figure 5.2, the client departments were represented by 54.17% (13 out of 24) in total and the operational staff members by 76.92% (20 out of 26) from both Port Elizabeth and Umtata regions.

Due to the time constraints, an effort was made during the month of September 2008 to contact the 33 respondents. Only 21 out of the 33 (64%) were successfully reached. The situation was explained and they all maintained that their original answers/responses given remained the same. They further maintained that no obvious changes in the way NDPW operated were observed.

5.9 CONCLUDING REMARKS

The aim of this chapter was to document the methodology that was used during the research and to present the analysis of the biographical details of the respondents.

The author described the empirical approach that was used in the study, including the research design, research methods, as well as the theoretical basis for the design. A detailed discussion revolving around the questionnaire and the administration thereof as well as the various data collection methods was also given.

An analysis of the response information of the respondents was provided by means of tables and a pie chart.

The following chapter will focus on Section 1 and Section 2 of the survey as well as the brainwriting process. Strategies currently used by NDPW will be analysed and interpreted and a detailed analysis of the findings will be presented.

CHAPTER SIX

ANALYSIS AND INTERPRETATION OF THE RESULTS OF THE EMPIRICAL STUDY

6.1 INTRODUCTION

In the previous chapter the research methodology that was used during the study was described. In addition, the analysis of the biographical details and the response rate of the respondents were highlighted.

The aim of chapter six is to assist in solving sub-problems two and three, namely:

- What project management strategies do the operation staff and management team of National Public Works Department of the Eastern Cape believe is working?

- What project management strategies do the operation staff and management team of National Public Works Department of the Eastern Cape think will improve project delivery?

The questions from Section one were based on strategies revealed through the literature study as described in chapter two as well as existing strategies currently being used by NDPW. The results of Section two of the questionnaire are presented, namely, the structural and infrastructural decision areas currently being utilised by NDPW and the level of importance the respondents attached to each decision area.

The research findings from Section two have been organised and presented in tabular form in the same sequence as the questions appear in the questionnaire. The programme SPSS Version 13.0 for Windows was used to tabulate and process the data collected after which the data was converted into bar graphs.

6.2 ANALYSIS OF OVERALL RESPONSES

6.2.1 Project Management Strategy

In section one of the questionnaire, the respondents were asked firstly to give an indication of their experience level in the field of project management followed by his/her opinion on their understanding of and insight into project management strategies. The respondents were instructed to answer the questions by indicating their preferred choice of the options available to each question.

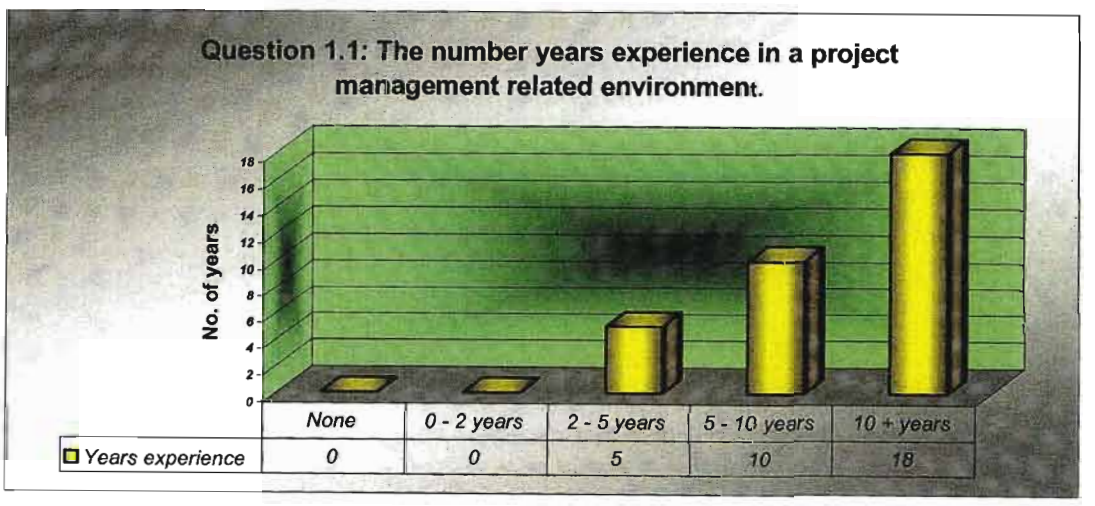

Figure 6.1: Response to question 1.1

As shown in figure 6.1, five out of thirty three (15.15%) of the respondents fall within the 2-5 years of experience in a project related

environment while ten out of thirty three (30.30%) of the respondents have between 5-10 years of experience and eighteen out of thirty three (54.45%) of respondents have 10 years and above experience.

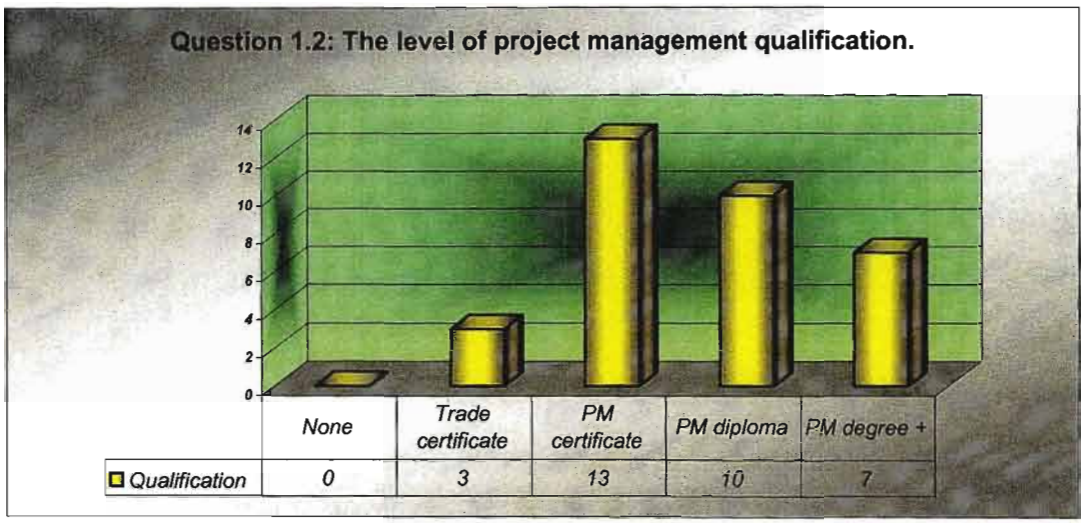

Figure 6.2: Response to question 1.2

Figure 6.2 shows the level of project management qualifications of the respondents. Three out of thirty three (3.09%) are in possession of a trade certificate and thirteen out of thirty three (39.39%) are in possession of a project management certificate. Ten out of thirty three (30.30%) indicated that they were in possession of a project management diploma while seven out of thirty three (21.21%) have a degree and above qualification.

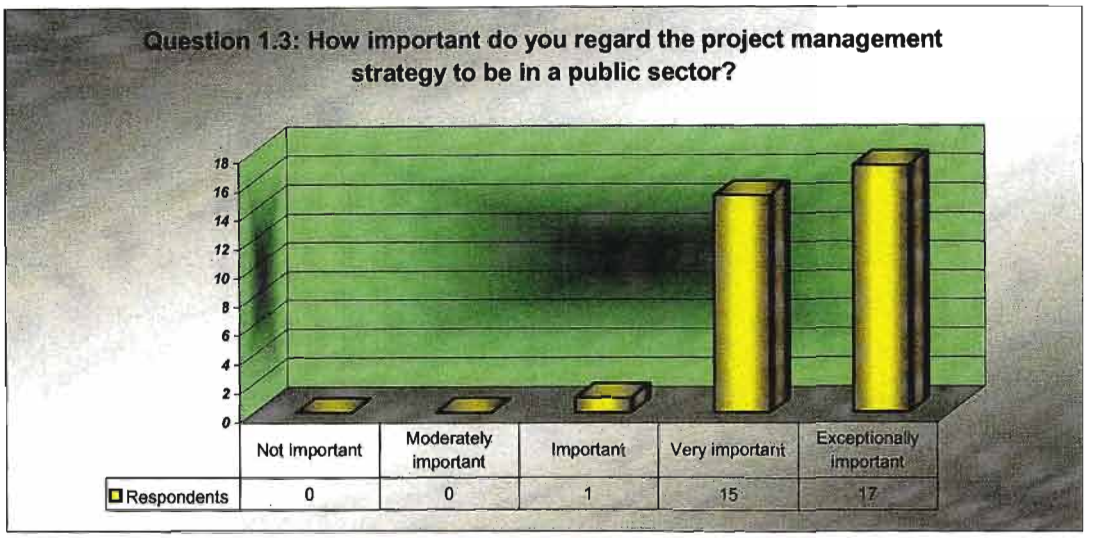

Figure 6.3: Response to question 1.3

As shown in figure 6.3, seventeen out of thirty three (51.52%) of the respondents regard a project management strategy to be "exceptionally important," to a public sector, fifteen out of thirty three (45.45%) regard it to be "very important" and one out of thirty three (3.03%) regard it to be "important."

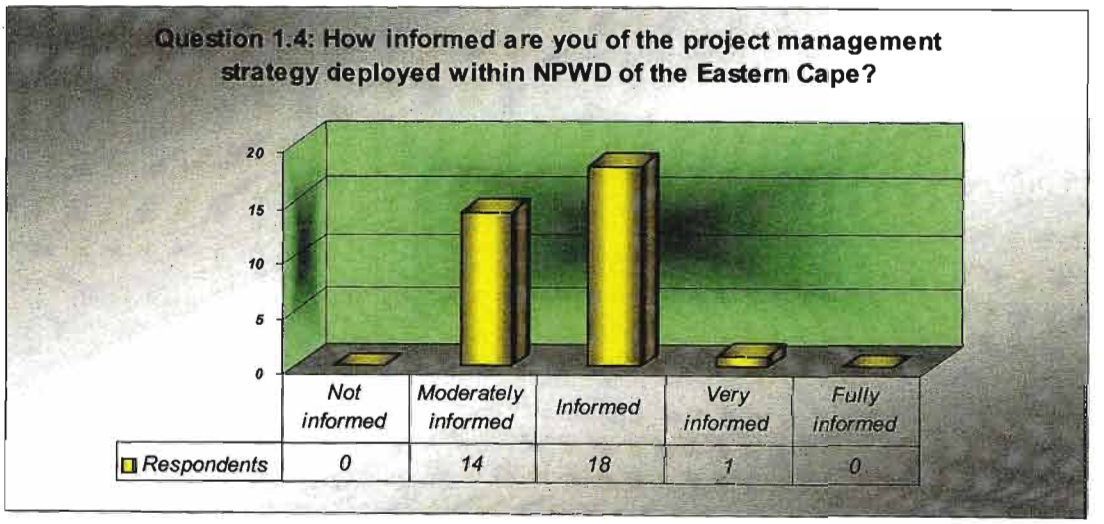

Figure 6.4: Response to question 1.4

In figure 6.4, one out of thirty three 3.03% of the respondents are "very informed" of the project management strategy deployed in NPWD of the Eastern Cape (EC), eighteen out of thirty three (54.55%) are "informed" while fourteen out of thirty three (42.42%) of the respondents are "moderately informed."

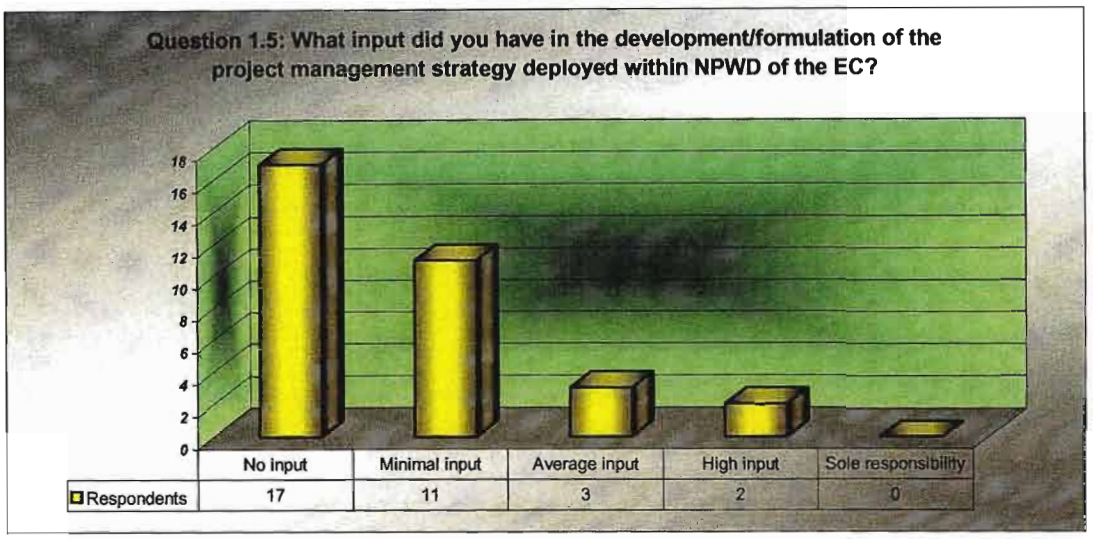

Figure 6.5: Response to question 1.5

In figure 6.5, two out of thirty three (6.06%) of the respondents had "high input," in the development/formulation of the project management strategy deployed within NPWD of the EC while three out of thirty three (9.09%) had "average input," eleven out of thirty three (33.33%) had "minimal input," and seventeen out of thirty three (51.52%) of the respondents had "no input."

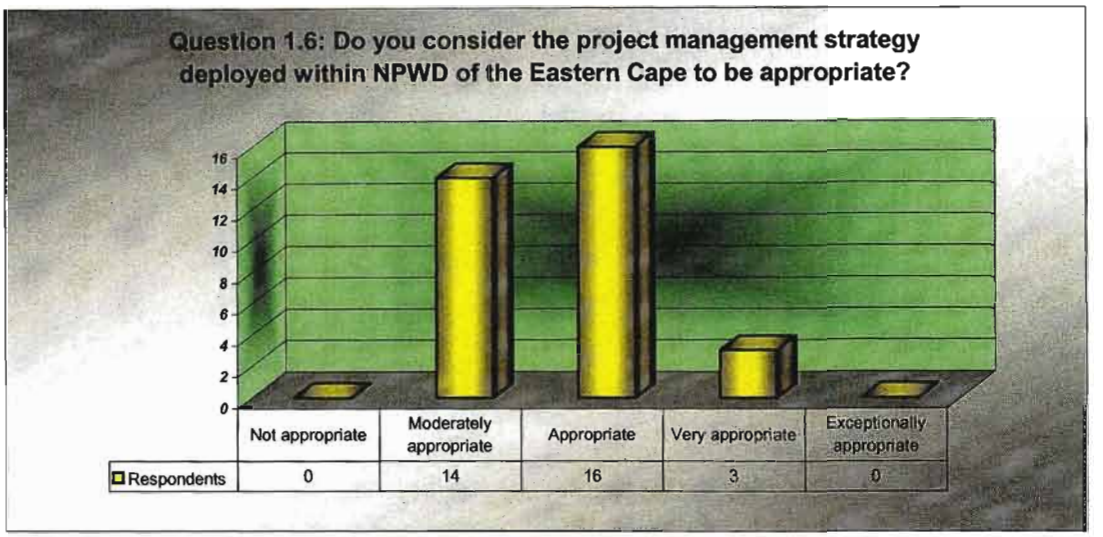

Figure 6.6: Response to question 1.6

In figure 6.6, three out of thirty three (9.09%) of the respondents agree that the project management strategy deployed within NPWD of the Eastern Cape is "very appropriate," sixteen out of thirty three (48.48%) regard it as "appropriate," and fourteen out of thirty three (42.42%) regard it as "moderately appropriate."

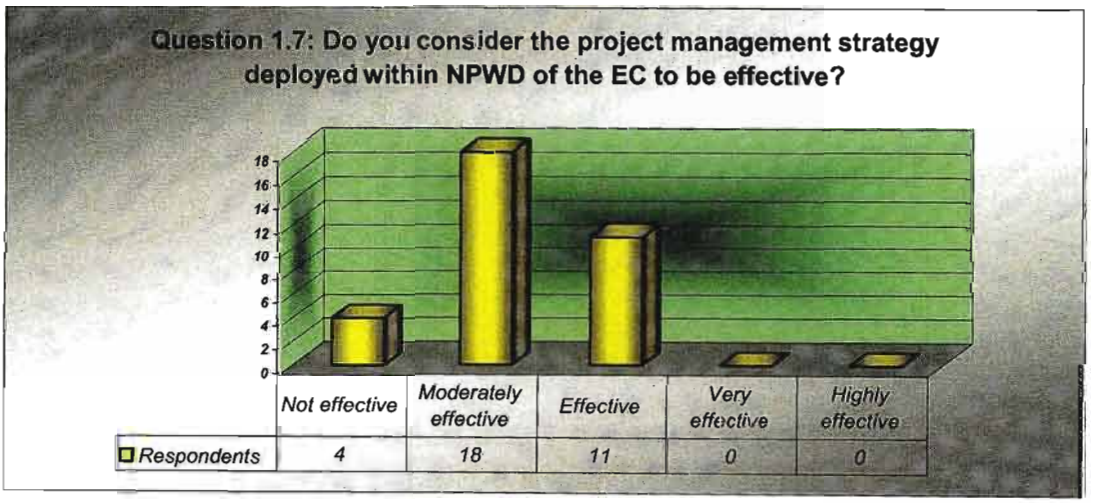

Figure 6.7: Response to question 1.7

In figure 6.7, eleven out of thirty three (33.33%) of the respondents indicated that the project management strategy deployed within NPWD of the Eastern Cape is "effective," eighteen out of thirty three (54.55%) find it to be "moderately effective," and four out of thirty three (12.12%) of the respondents find it to be "not effective."

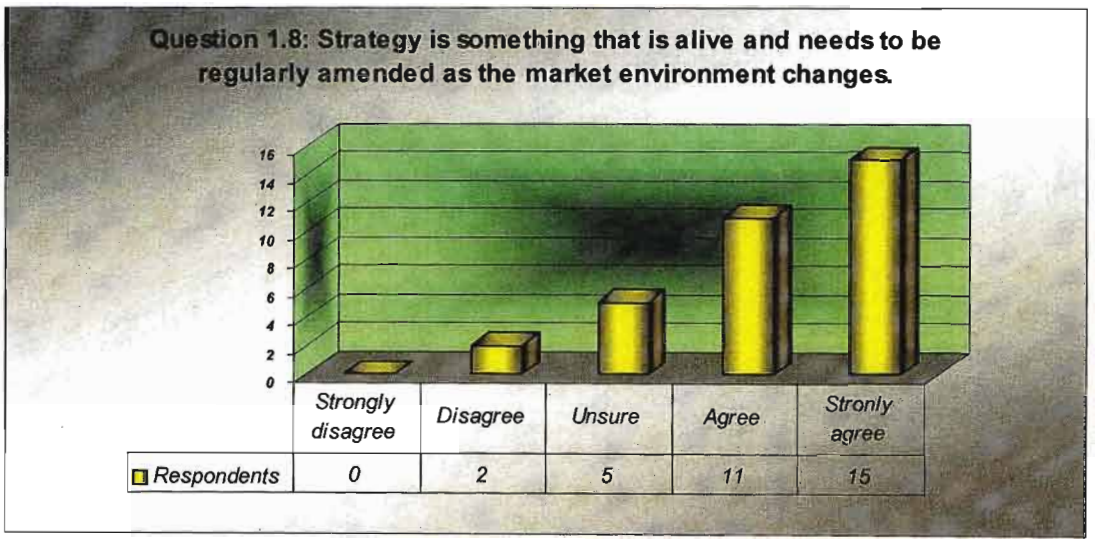

Figure 6.8: Response to question 1.8

In figure 6.8, fifteen out of thirty three (45.45%) of the respondents "strongly agree," eleven out of thirty three (33.33%) "agree," five out of thirty three (15.15%) are "unsure" and two out of thirty three (6.06%) disagree that the changes that take place in the market environment would directly affect NPWD of Eastern Cape.

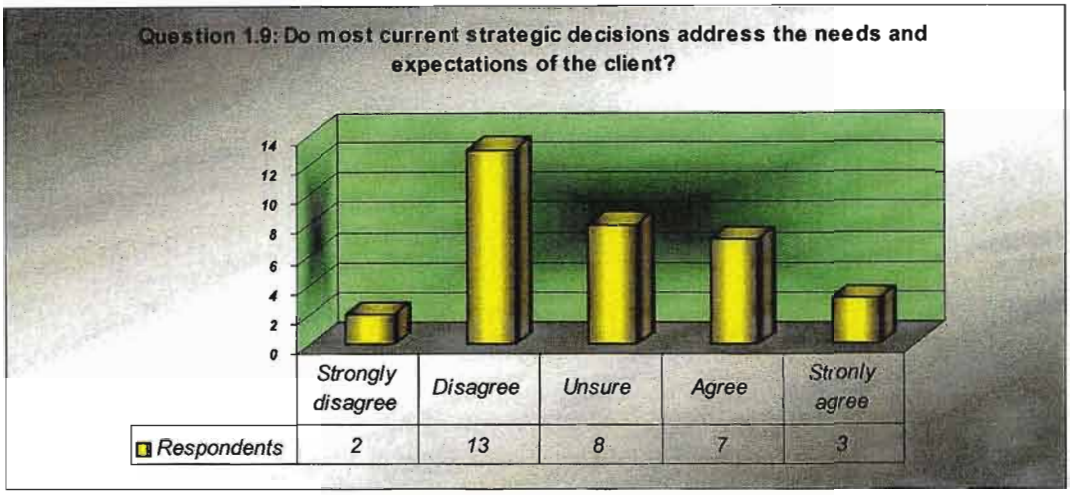

Figure 6.9: Response to question 1.9

In figure 6.9, three out of thirty three (9.09%) of the respondents "strongly agree," seven out of thirty three (21.21%) "agree," eight out of thirty three (24.24%) are "unsure," thirteen out of thirty three (39.39%) "disagree," and two out of thirty three (6.06%) "strongly disagree" that most current strategic decisions address the needs and expectations of the client.

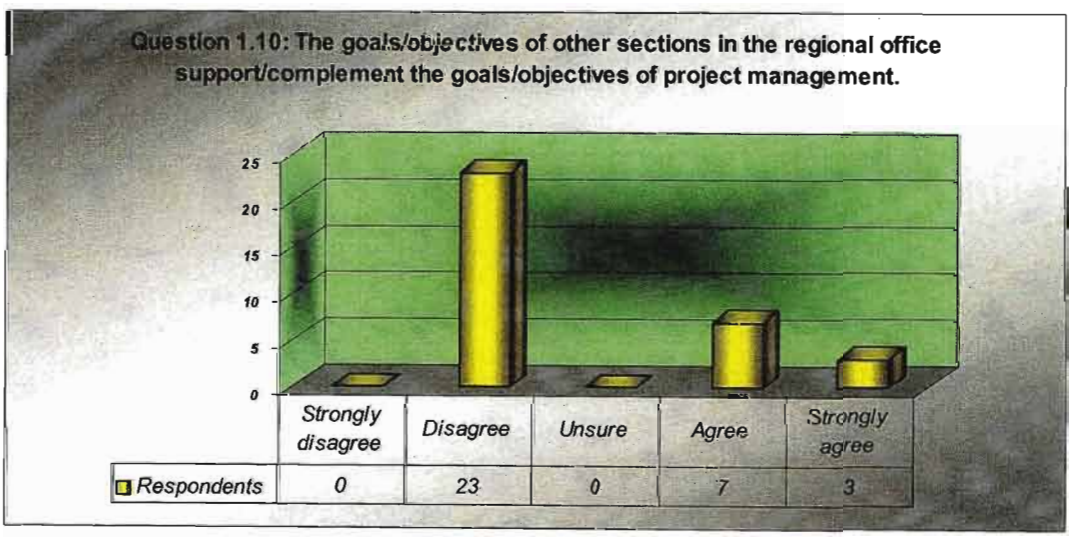

Figure 6.10: Response to question 1.10

Figure 6.10 shows that three out of thirty three (9.09%) of the respondents "strongly agree," seven out of thirty three (21.21%) "agree," and twenty three out of thirty three (69.70%) "disagree" that the goals/objectives of other sections in the regional office supports/complement the goals/objectives of project management.

The objective of section one in the questionnaire was to establish the respondents' understanding of project management strategies and the level of involvement they had in the development/formulation of the project management strategies deployed within NPWD of the Eastern Cape

6.2.2 Structural and infrastructure decision areas

Section two concentrated of the level of importance and the level of performance of structural and infrastructural decision areas within the project management division. The respondents were instructed to answer the questions by indicating their preferred choice of the options available to each question.

Annexure six shows the overall "level of performance" responses and Annexure seven the overall "level of importance" responses of the respondents.

The total responses, mean responses, median responses and standard deviation (STDEV) are included in *Annexure six* and *Annexure seven* representing performance and level of importance respectively.

Figure 6.11 below was developed from *Annexure six* and *Annexure seven* with the intention to give a clear indication of the level of importance (mean) in comparison with the level of performance (mean).

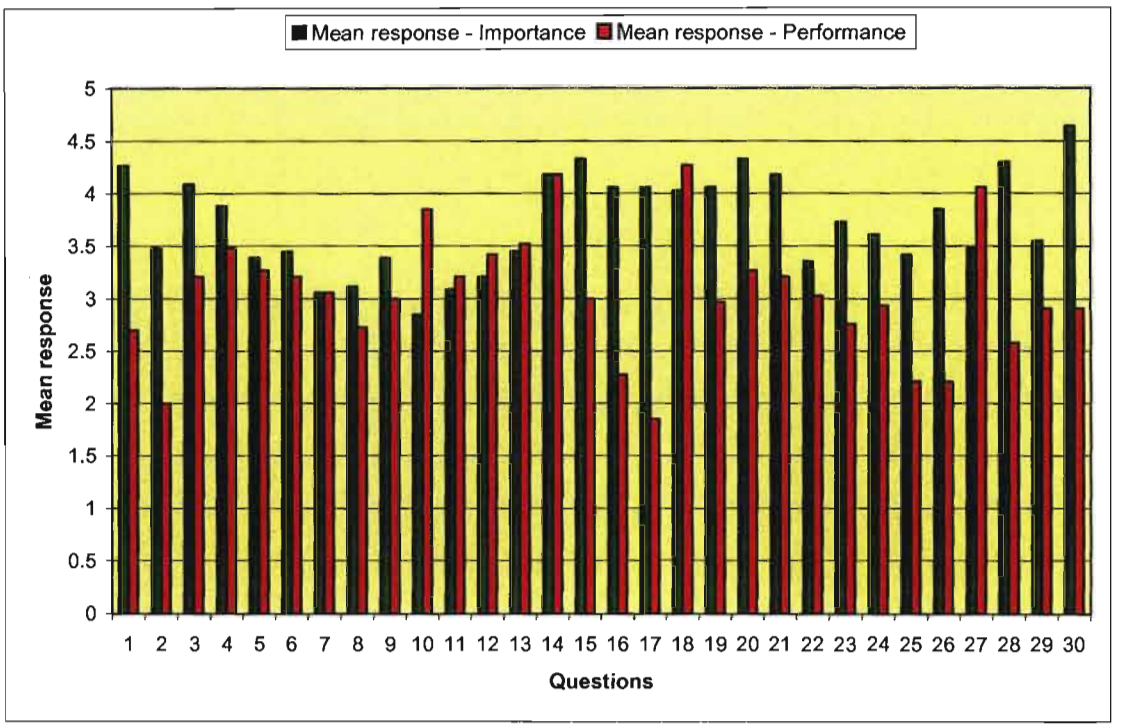

Figure 6.11: Mean response – level of importance and level of performance

The measures below-satisfactory were then identified and listed as shown below and in figures 6.12 and 6.13, which also include the ranking, based on the level of importance. The reason for using the level of importance to rank each measure below-satisfactory, is based on the clients and staff's perception. The measures below-satisfactory were then divided into their categories, namely, structural and infrastructural decision areas. The division is indicated in figure 6.14 and 6.15 as structural and infrastructural decision areas respectively.

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No.	Measures	Performance	Importance	Ranking
2.30	Overall performance	2.91	4.64	1
2.28	Client satisfaction	2.58	4.3	2
2.1	Quality of service delivery	2.70	4.27	3
2.16	Leadership/management competencies	2.27	4.06	5
2.17	Technical skills of project management staff members	1.85	4.06	4
2.19	Project management qualifications and training	2.97	4.06	6
2.26	The use of project management tools and techniques	2.21	3.85	7
2.23	Project delivery speed	2.76	3.73	8
2.24	Project delivery dependability	2.94	3.61	9
2.29	Project manager's accountability and responsibility	2.91	3.55	10
2.2	Allocation of financial resources	2.00	3.48	11
2.25	Person to person contact, including timeliness, courtesy, and professionalism	2.21	3.42	12
2.8	Planning of projects and services	2.73	3.12	13

Figure 6.12: Measures below satisfactory

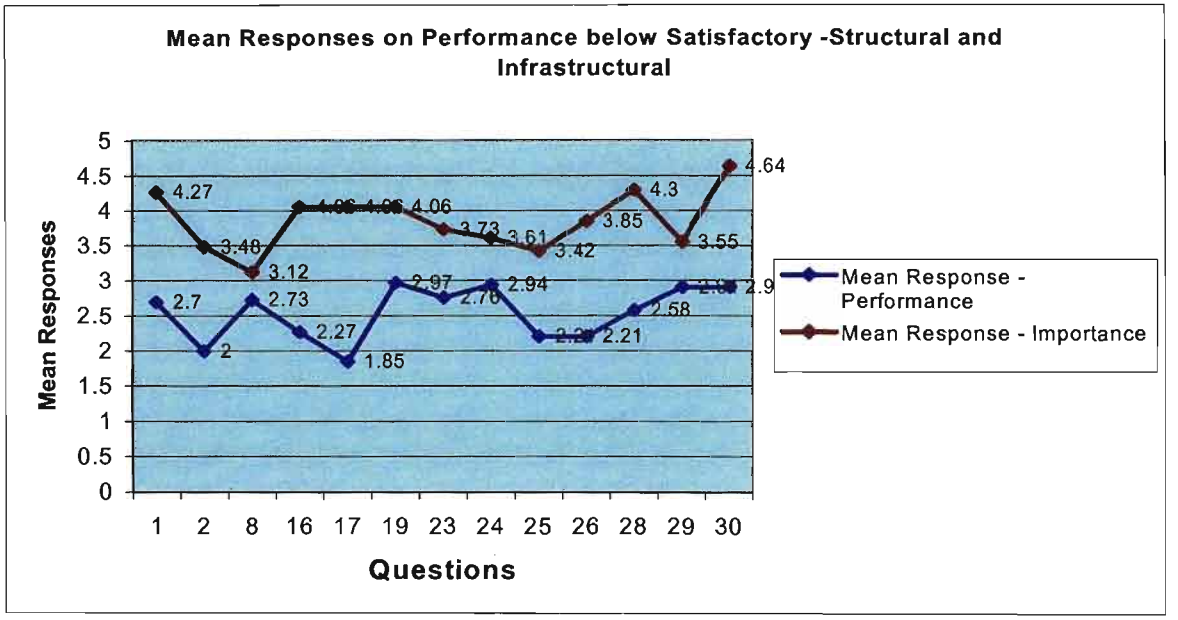


Figure 6.13: Mean responses on performance below satisfactory (structural and infrastactural)

The areas which require attention are as follows:

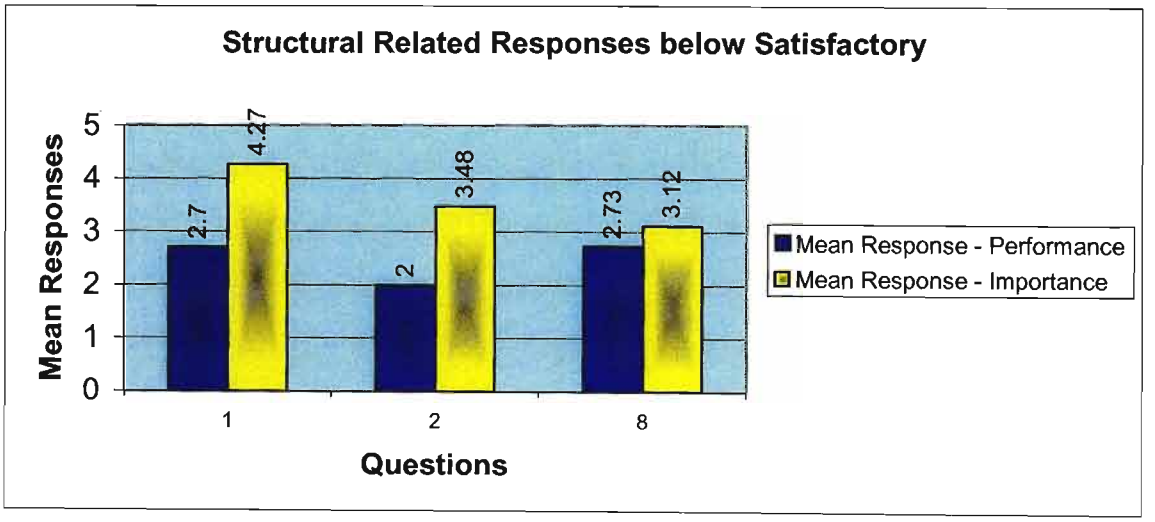


Figure 6.14: Structural related responses below satisfactory

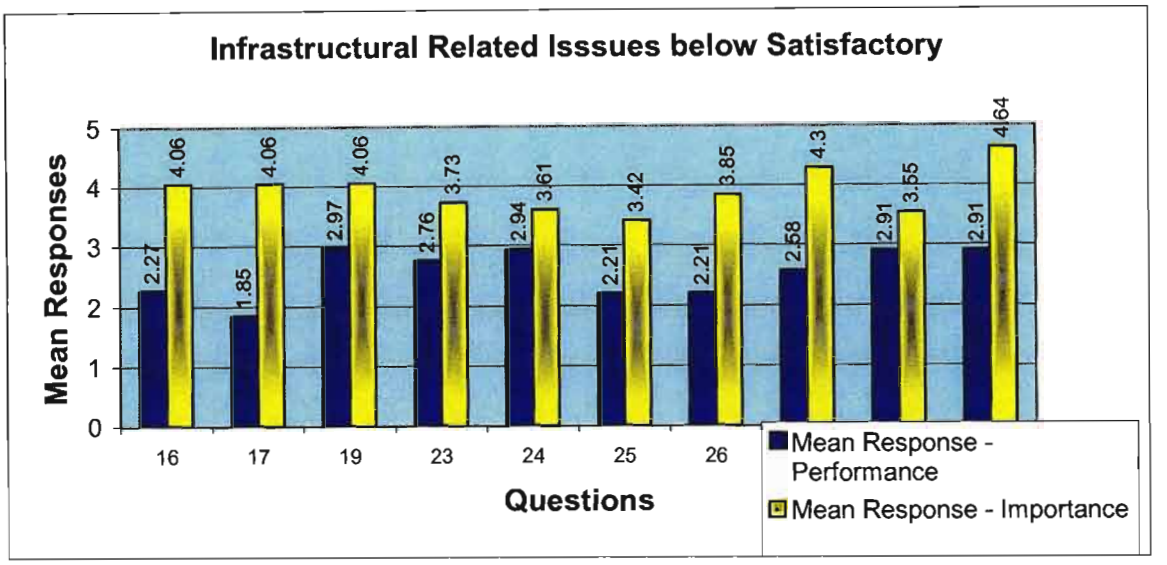


Figure 6.15: Infrastuctural related issues below satisfactory

Figures 6.14 and 6.15 clearly highlight the different responses below satisfactory. From this it can be concluded that NPWD can improve their effectiveness and efficiency if they develop strategies around the structural and infrastructural issues.

6.3 FEEDBACK OF THE BRAINWRITING SESSION

On the 18th July 2003, seven members of the major client departments attended the brainstorming session. As mentioned earlier, the aim was to identify issues they believed hindered the efficiency of NPWD's operations. The attendance from the client department's representatives of the brainwriting session was fairly good. The expected attendance was eight members of which seven attended (87.5%). As a result of the time constraints, six out of the seven (86%) were successfully reached during the month of September 2008. They all confirmed that the status and their feedback given at the time will still remain and that no major changes were observed. In order to ensure completeness in a set of ideas, a causal loop model approach (CLM) adopted from Ryan (2001: 13), was

used which resulted in the following possible causes of inefficiency within NPWD:

Figure 6.16. A CLM for improving efficiency adopted from Ryan 2001: 13

Figure 6.16 must be read from the "desire for improving efficiency" – left bottom corner. It allows the group to identify any shortcomings or inefficiencies. These perceptions/observations of inefficiencies must be used to create acceptable levels of efficiency and include the reduction of waste and re-work. Strategies to improve efficiency and to achieve the set targets must then be developed, from which a plan must be developed. Sufficient resource must then be provided to ensure that the plan is successfully implemented. During the implementation process and operation the efficiency of the strategy implemented must be measured against the set targets. The results should either be positive or it will be

realised that the strategy employed did not work – to re-look and develop different strategies.

To complete the causal loop model (CLM) as presented in figure 6.16, and to return to the shortfall (perceived efficiency), it was found necessary to introduce some ideas in order to close the loop. The brainwriting session was then used to generate ideas which resulted in the following concepts that emerged from the exercise:

Client dissatisfaction:	Identify ways to improve service delivery and response time to client's needs. This poor service delivery has resulted in a negative perception of National Public Works Department's (NPWD's) ability to deliver a satisfactory service.
Communication flow:	Implement ways that will improve the communication flow between NPWD's components, contractors and its client departments.
Personnel development:	Implement proper training and development programs that will enhance productivity.
Management duties:	Design duties and responsibilities of section managers in a way that will complement the effectiveness and efficiency of NPWD.
Layout and process flow:	Redesign the layout and process flow to shorten the complaint cycle time.
Organisational knowledge:	All components are not only to understand their individual goals, but also make themselves aware of how other components can assist in the overall service delivery.
Resistance to change:	Implement change management programmes to reduce resistance and change.
Location:	It was suggested that relocation of operations

	unplanned maintenance be considered. Not only would it cut down on extensive traveling, but will contribute enormously to client satisfaction.
Emerging Contractors Development:	Engage in supporting the training and development of emerging contractors to deliver satisfactory services at all times.
Expansion:	Identify opportunities to serve the clients needs through expanding the core business.
Policy implementation:	Place emphasis on the existing policies within NPWD which are designed for efficiency.
Relationship:	Explore ways to improve relationships between NPWD's components and its client departments.
Internal requirements:	Decrease delays in service completion dates by decreasing internal requirements.
Resources:	Identify ways to improve resources to increase productivity.
Technology:	Use the required technology available to improve effectiveness and efficiency.
Excessive paperwork:	Reduce excessive paper work by implement modern computer programs. The software packages should improve the process flow of information.
Funds allocation:	Allocate sufficient funds for each service to be rendered. Lack of funds result in delays in the completion of a required service.
Planning:	Do proper planning for each service. Proper planning contributes to the effectiveness of any organisation.
Delegation of Authority:	Top management should reconsider the delegation of authority. The current lack of authority plays a major role in the unsatisfactory service delivery.

After the members were briefed as to how the Affinity Diagram (adopted from Methuen MA. 2003: 1) worked, they grouped together the related ideas, and agreed on a concise sentence for each grouping that would combine it to the central idea. The idea cards from the affinity diagram were used to create the interrelationship (see figure 6.17)).

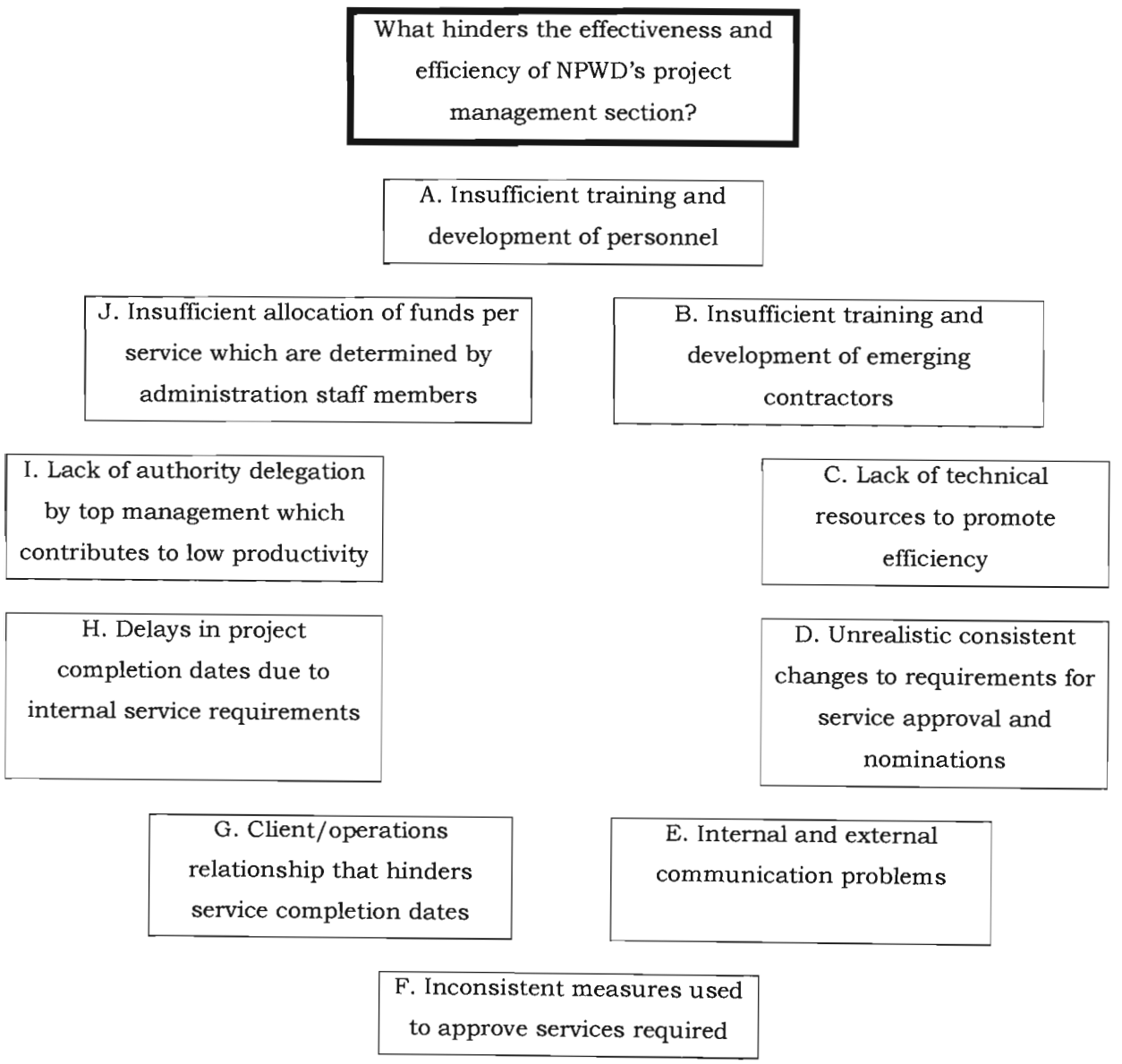


Figure 6.17: Idea issue cards for the Interrelationship created from the Affinity Diagram

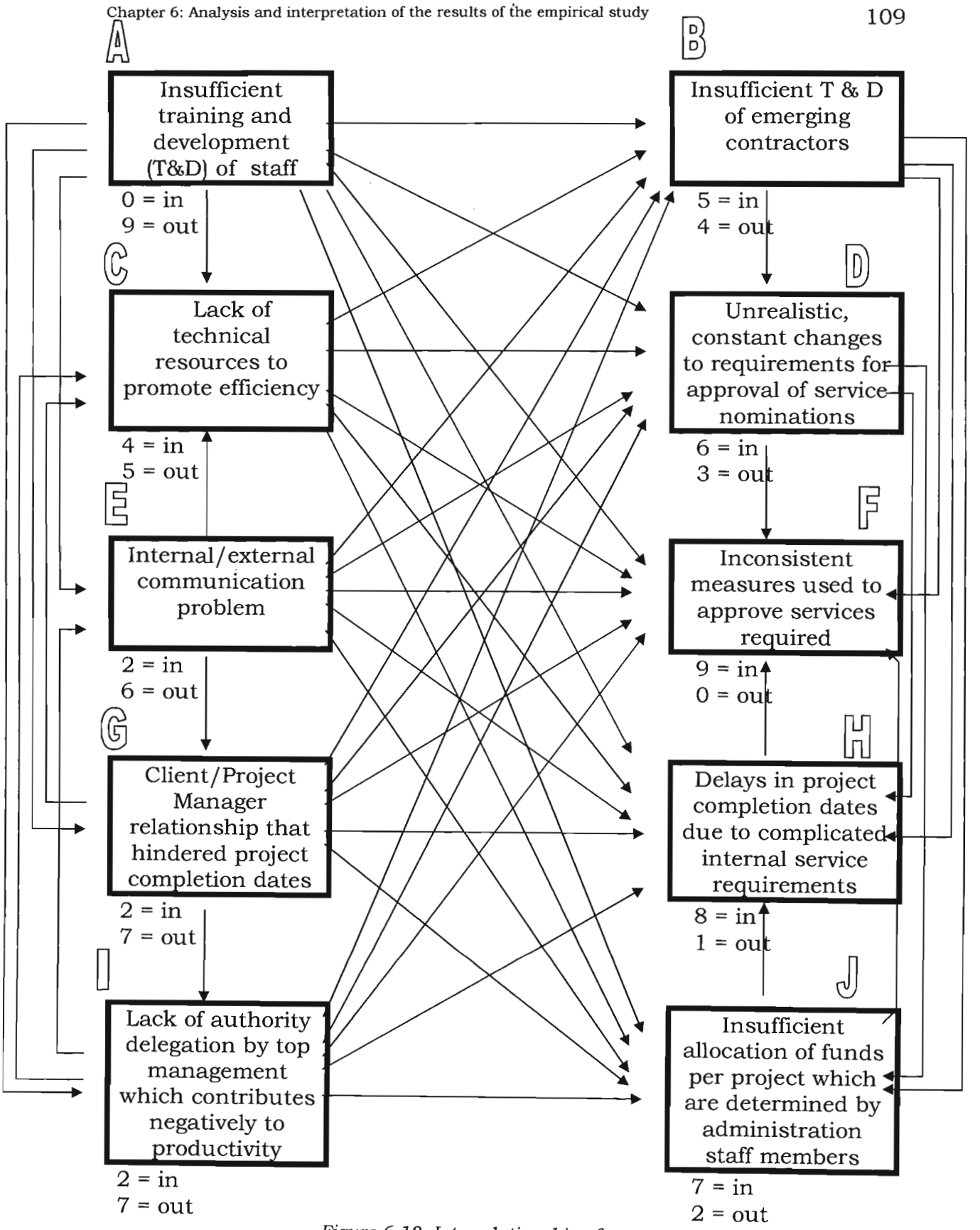


Figure 6.18: Interrelationship of concepts

From the interrelationship (figure 6.18), the panel concluded that insufficient training and development of staff members have been the primary reason why NPWD's project management section has not been effective and efficient in executing duties (see figure 6.19). This conclusion was derived after the completion of the interrelationship of concepts.

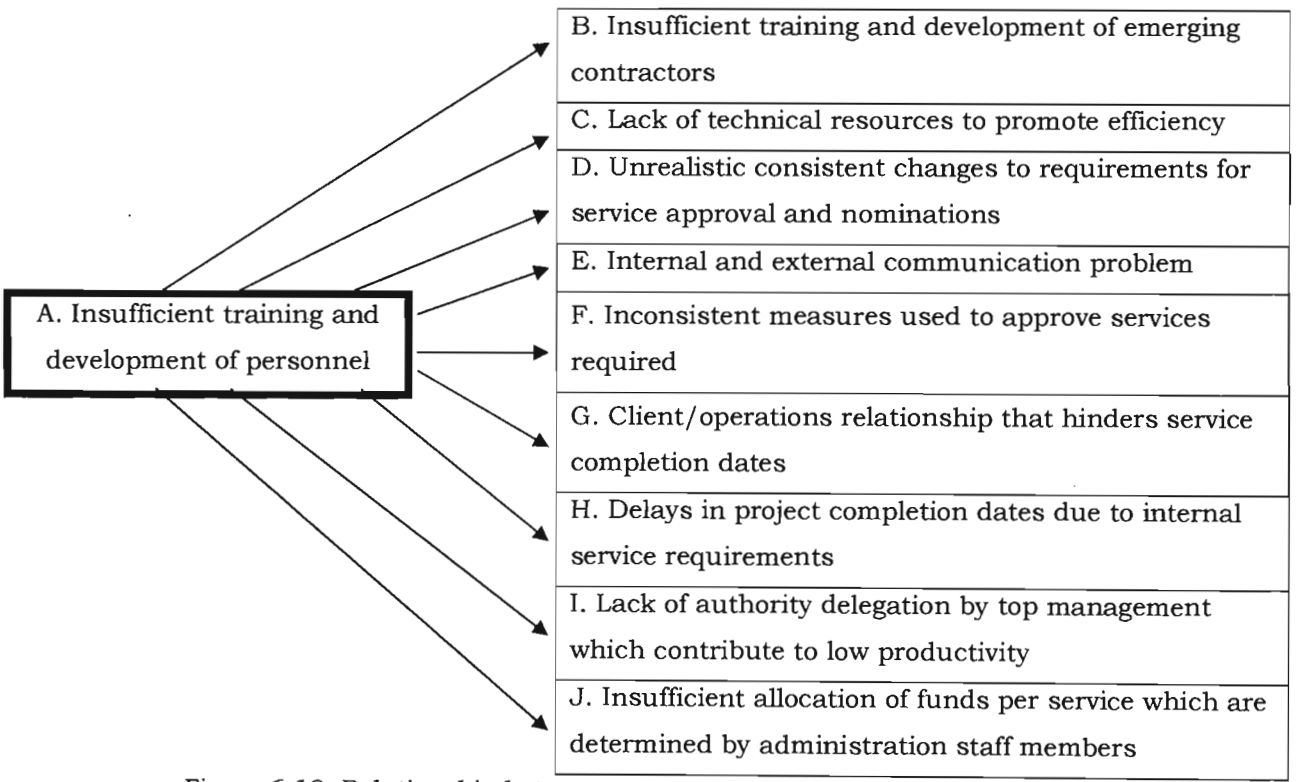


Figure 6.19: Relationship between concepts and identified driver

- A results in B
- A complements C
- A leads to D
- A adds to E
- A result in F
- A creates G
- A causes H
- A promotes I
- A is an example of J

6.3.1 The purpose of training and development

Seven of the major reasons for training and development are identified by Carrel, Elbert, Hatfield, Grobler, Marx and Van der Schyf (1997: 310) as:

- *Improve performance.* Due to deficiency in skills and knowledge, workers tend to under perform - a need for training and development becomes apparent.
- *Update employee skill.* It is expected from leaders and managers to be receptive of technological advances and that it will positively contribute to its effectiveness.
- *Avoid managerial obsolescence.* To strive to stay abreast with new ideas and latest developments.
- *Solve organisational problems.* Organisational delivery problems are normally solved through training and development.
- *Orient new employees.* There is always some degree of expectation from an employee about the organisation. Orientation is necessary to better their understanding.
- *Prepare for managerial succession and promotion.* This is to attract, retain and motivate workers.
- *Satisfy personal growth needs.* To introduce activities that will result in greater organisational effectiveness and individual satisfaction.

Berge (2003), according to Ryan (2002: 12), maintains that training and development professionals must learn how to effectively manage not only the change, but continue to value the employees who must make those transitions. Two factors, intellectual capital and knowledge networks play key roles in effectively managing those changes and in influencing the workplace. By building upon existing knowledge networks, training and development professionals will help increase both the intellectual capital of a company and the skill set of the employees involved.

Robertson (2003: 1) advocates that many organisations make use of knowledge management to deal with training and development issues - a knowledge management strategy is required to address such initiatives.

6.3.2 Knowledge management strategy

Bennet and Bennet (2003: 1) define knowledge management as a process for "optimizing the effective application of intellectual capital to achieve objectives". For an organisation, it means that a systematic approach should be adopted - to get an organisation to use knowledge during the implementation of its mission and to view it mainly as a long-term high performance based approach or sustainable competitive advantage. From these viewpoints, it can be surmised to mean optimising the effective use of the personal knowledge (the ability and capacity to be effective in their actions when dealing with a variety and indecisive situations) to achieve personal and organisational objectives.

The engineering education centre of Loughborough University (2003: 1) declares that knowledge management is a concept used by companies or organisations to comprehensively organise, gather, share, and analyse its knowledge in terms of people skills, documents and resources.

From the above statement it is evident that knowledge management can be regarded as a procedure to find, collect and share information within an organisation and that it is about making optimum use of the skills, ideas and knowledge of employees.

Garigue (1998: 1) advocates that knowledge management considers knowledge as a critical production factor and encompasses activities by focussing on the best possible use and development of knowledge for the present and future. It involves a wide range of instruments and

techniques to better the overall performance of learning capabilities and operations (knowledge) of the organisation.

Garigue (1998: 1) continues by stating that adequate adjustments of offers and knowledge broadening services and products will produce reduction costs and process time. The old saying "work smarter, not harder" is the product of knowledge management. It will furthermore increase the organisational flexibility and enhance the services, products and quality – considering environmental changes.

From the above it is evident that knowledge management implementation can contribute towards organisational development in terms of utilisation of existing skills and information.

6.4 CONCLUDING REMARKS

The purpose of this chapter was to present and analyse the research findings. The analysis and interpretation of the results of the empirical study was undertaken in terms of the objectives of the research as stated in chapter one. What became evident from the results of the responses from the respondents was that the strategies and factors contributing to project management success, as presented in chapter two and three, all had merit.

This chapter resolved sub-problems two, three and four as discussed in chapter one and in doing so achieved the main objective of the research which was to identify the strategies which will enhance the ability of NDPW of the Eastern Cape to ensure continuous successful project delivery.

The chapter contained the results and analysis of the responses from the survey questionnaire and the results of the brainwriting session held with the client departments. The final chapter of this study presents a summary as well as conclusions and recommendations pertaining to the research.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATIONS

7.1 INTRODUCTION

The results of the research findings were presented in the previous chapter. The findings were integrated with findings of the literature survey and brainwriting exercise, which examined strategies, activities and principles to ensure successful project delivery in National Public Works Department (NDPW).

After taking into consideration all the available theories as mentioned in chapter two and three, and comparing it with the current situation as identified in chapter four, it is evident that there is room for improvement.

This chapter aims to summarise and identify the key elements of the research study. It includes recommendations on project management strategies and activities that will enhance NPWD's efficiency. The recommendation covers areas which the author believes can be implemented and be used to develop strategies to increase productivity. A conclusion will then be derived.

7.2 PROBLEMS ENCOUNTERED

There were no major problems encountered during the research. However, only 33 out of the chosen 50 respondents returned the

questionnaires, even after several follow-up e-mails by the researcher. Telephone calls proved fruitless and the researcher could only assume that those who did not respond were on leave or out of the office indefinitely or did not want to respond.

7.3 SUMMARY OF THE RESEARCH FINDINGS

7.3.1 Findings from the empirical study

From the empirical part of the study, the following information was gained:

In section one of the questionnaire, which concentrated on "project management strategy", the following findings were identified, with reference to:

- Figure 6.1 and 6.2: twenty eight out of thirty three (84.85%) of the respondents were found to have more than five years experience in a project related environment and seventeen out of thirty three (51.52%) of the respondents were found to have a project management diploma or higher qualification, which resulted in valuable input from the respondents.

- Figure 6.3: The respondents indicated how important a project management strategy is to a public sector. Thirty three out of thirty three (100%) confirmed that it is important to have a project management strategy in a public sector.

- Figure 6.4: A total of fourteen out of thirty three (42,42%) of the respondents are only moderately informed of the project

management strategy deployed in the organisation, although the questionnaires were circulated to key employees within NPWD and key client representatives.

- Figure 6.5: seventeen out of thirty three (51.52%) of the respondents had "no input" into the development/formulation of the project management strategies deployed in NPWD.

- Figure 6.6: nineteen out of thirty three (57.58%) of the respondents found the strategy NPWD used, "appropriate" and "very appropriate."

- Figure 6.7: twenty two out of thirty three (66.67%) of the respondents were of the opinion that the project management strategy deployed within NPWD is "not effective" and "moderately effective," even though 57.58% of the respondents had considered it to be appropriate and very appropriate.

- Figure 6.8: twenty six out of thirty three (78.79%) of the respondents were aware that a strategy needs to be regularly amended due to environmental changes.

- Figure 6.9: Only ten out of thirty three (30.30%) of the respondents agreed that the current strategic decisions address the needs and expectations of the client.

- Figure 6.10: twenty three out of thirty three (69.70%) of the respondents maintained that the goals/objectives of other sections in the regional office do not complement/support the goals/objectives of project management.

It was evident that although the respondents understood the importance of a project management strategy to an organisation, some key employees were not fully aware of the project management strategy of NPWD. Another concern is that only a few employees had some input in the formulation of the strategy deployed in NPWD.

There was a high percentage of agreement among the respondents that the strategy deployed within NPWD was appropriate, yet a high percentage of respondents believed it to be ineffective. Furthermore, there was agreement that strategies should change as the market environment changes.

According to the findings, the respondents believe that the current strategic decisions do not address the client's needs and expectations.

In the second part of the questionnaire, which concentrated on the "structural and infrastructural decision areas," the following findings were identified, with reference to figure 6.11, 6.12, 6.13 & 6.14 and 6.15.

The areas of concern are identified in the figures as mentioned above. The objective of figure 6.12 and 6.13 was to obtain a sufficiently detailed picture of the respondents' perceptions of how NPWD is performing compared to how NPWD should be performing. The areas with a distinct gap have been identified between the organisation's performance and the required levels of performance. The largest gaps, evident between the "level of performance" and the "level of importance", reveal that NPWD needs to address the following areas:

- Overall performance;
- Client satisfaction;

- Quality of service delivery;
- Leadership/management competencies;
- Technical skills of project management staff members;
- Project management qualifications and training;
- The use of project management tools and techniques;
- Project delivery speed;
- Project delivery dependability;
- Project manager's accountability and responsibility;
- Allocation of financial resources;
- Person to person contact, including timeliness, courtesy, and professionalism; and
- Planning of projects and services.

7.3.2 Findings of the brainwriting session

The brainwriting session identified that insufficient training and development of staff members have been the primary reasons why NPWD's Project management section was not as effective and efficient had proper training and development took place. The outcome of the exercise identified training and development as the primary solution to address the following concerns raised by the members:

- Insufficient training and development of emerging contractors;
- Lack of technical resources to promote efficiency;
- Unrealistic consistent changes to requirements for service approval;
- Inconsistent measures used to approve services required;

- Client/operations relationship that hinders service completion dates;
- Delays in project completion dates due to internal service requirements;
- Lack of authority delegation by top management which contribute to low productivity; and
- Insufficient allocation of funds per service which are determined by administration staff members.

7.4 OBSERVATION DURING THE BRAINWRITING SESSION

During the intervention (brainwriting session), there were very interesting reactions that occurred in the individuals present. The most common that was immediately apparent was firstly apprehension. Most of these people had been following the same routine for years and now the balance was being disturbed. Understandably, the apprehension was a direct result of expecting the worst. The second most obvious reaction was fear which stemmed from the uncertainty of the unknown.

These two emotions were overpowering in its intensity as the individuals struggled to come to terms with the drastic changes that were to take place. A lot of the apprehension was also caused by the age-old notion that changes within the workplace automatically cause job-losses, job redundancy and more. Some individuals experienced a sense of uncertainty for their futures and at that period in time could not find anything positive about changes taking place. These negative feelings had to be dispelled as quickly as possible.

On also gauging the reactions of the various groups of people who grouped together, perhaps believing that there was safety in numbers, animosity and hostility was clearly evident. The hostility became apparent when there was absolute silence when ideas and suggestions were called for. When eventually forthcoming, the antagonism was deliberate and the suggestions openly hostile. The groups were definitely not open to change and showed it in the responses. The only time fervour was evident, was in the response that things remain the same, as it seemed to be working fine. Why upset the applecart? When speaking about the present way of doing things, everyone became enthusiastic and seemed to be in agreement. It was quite obvious that there is a need for time to ponder about new ways of doing things.

7.5 RECOMMENDATIONS

In order for NPWD to achieve its overriding objective (satisfying its client departments), and to adhere to the Government's policy to involve the PDI's, many changes should be considered.

Everyone in the organisation needs to pull together to ensure that the strategy deployed in NPWD works. For this to be achieved, the management of NPWD needs to continually remind its employees of its strategy to ensure that everyone in the organisation is working towards a common goal and therefore reducing the probability of strategy drift occurring.

Strategies to improve efficiency will result in doing things differently and will require some change. Change must not be introduced quickly and hastily, but rather gradually with people being aware of what lies ahead. Transparency should be the top priority and secrecy should be eliminated. Discussions should be held frequently and suggestions and

ideas, however far-fetched, should be seen as being taken seriously by management. This gives people the feeling that they are wanted and needed, contributing therefore to further satisfaction. If some of the more usable ideas are implemented, this will even further create a sense of belonging and usefulness. Management should make those employees who are still apprehensive, aware that they are still needed and that they play a pivotal role in achieving organisational goals.

Furthermore, workshops should be held which are specifically designed to address the issue of change and all the surrounding issues. This will show that management is not taking the employees feelings lightly and are doing everything in their power to dispel the negative feelings and eliminate feelings of inadequacy.

It is suggested that the management of NPWD appoint an individual or a team of employees to drive and facilitate the project management strategy process within the organisation. The intention of this recommendation is to achieve accountability and to involve as many of the employees as possible.

In the current fast changing and competing business "world", it has become a necessity for a successful business not just to establish goals but also to make certain that they are achieved. These goals will assist the organisation as well as the individual to apply their attention towards the areas where maximum returns can be achieved. This will result in sustainable and drastic production improvements. Participation in a goal setting process yields tremendous increase in job satisfaction and improved staff retention. As a result of the employees' involvement in the goal setting process that is based on the organisation's strategy (critical success factors, core values, vision, and mission), multiple benefits for the organisation and individual will become evident.

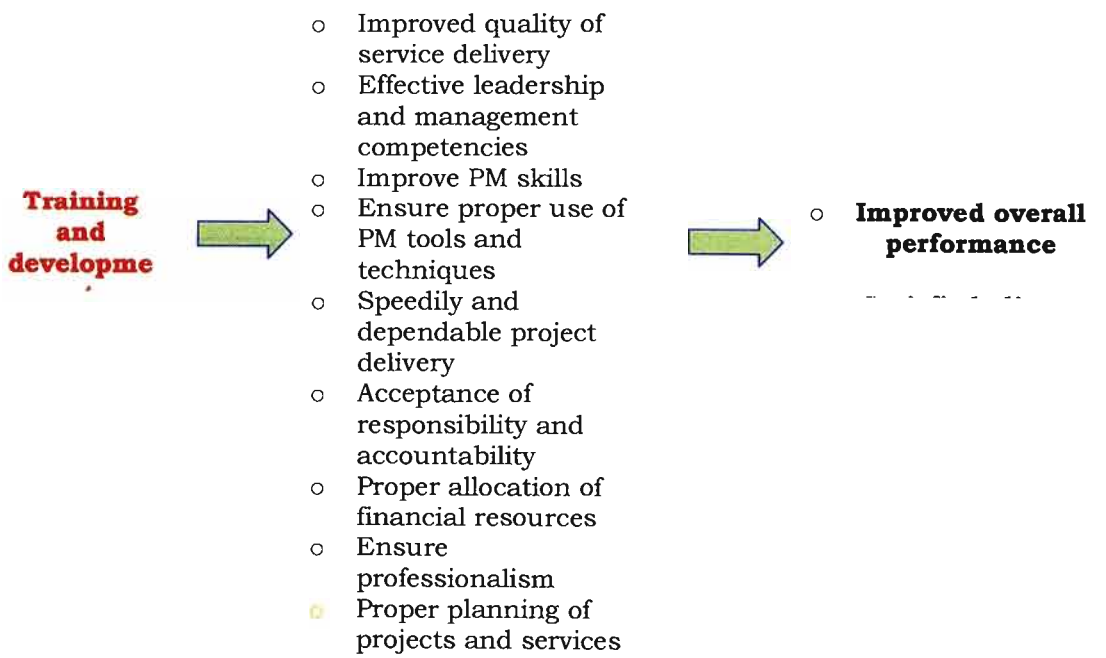
Since project management is the core function of NPWD, it is imperative to involve the supporting departments in developing strategies to improve efficiency. It is therefore extremely important for the organisation to ensure that all divisions work towards a common goal. Striving to achieve success in isolation will result in inefficiency of other divisions within the organisation. The strategic choices made must at all times support the goals/objectives of all functional areas. Working as a team will benefit all divisions and will ensure that the strategy deployed within project management complements other functional areas and vice versa.

It is further suggested that the management of NPWD should consider investing in "training and development programmes" which would effectively and appropriately address concerns mentioned in the summary of research findings.

The responses of the questionnaire clearly indicate that NPWD's project management department have the necessary skills and well-laid out policies and procedures. In order to address the issues below-satisfactory, top management have to decide how they can utilise the existing knowledge of their staff.

Although the knowledge management concept was used in prior information systems practice and research, fundamental changes in the business environment suggests not viewing knowledge management as a traditional information process. This is because of the programmed nature of procedures used in traditional information process was found to be inadequate to cope with the demands of the rapidly changing business environments. Current business environments are characterised by the rapid change of pace in its environments and lacking sequence nature of such change.

Knowledge must become the responsibility of management within an organisation. This is because of the environment demands that require knowledge-based business practices instead of production-based practices. The aim is to manage knowledge the same way as its physical and financial aspects. Charged with the responsibility to create an acceptable process and to deal with the changing environment, the roles of "knowledge managers" or "chief learning officers" is to deal with knowledge as an asset. It is therefore believed that if proper and selective training and development takes place it can result in improved performance and client satisfaction as shown below.



The management of NPWD needs to be clear about how to use its resources in relation to the success of a strategy. This could involve ensuring that unique resources are protected and that the process of bringing together a variety of resources to create a product is improved, or that the organisation's experience is properly exploited for competitive advantage.

Demand is rarely stable, therefore decisions need to be made as to how to change the organisation's resources to match the changes in the market place over time. Decisions in this area usually involve significant changes in capacity, like the purchase of new equipment, the opening of new facilities or the closure of sites. Long-term capacity planning involves major investment decisions and the results of these decisions will define the scope of the project management capability.

It is particularly important to understand that any changes in strategy will require issues to be re-thought and changed.

There is no need for leaders to invent a strategy. There are always some fundamental acts of creativeness that will emerge in every organisation where employees/managers define new activities that are new to all. It is believed that some leaders portray such abilities but it cannot be regarded as universal. What is expected from a leader is to instill discipline and methods to keep such an exceptional position sustained throughout.

Differently viewed is that leaders have to guard and protect the trade-offs. Employees come forward daily with new suggestions; clients demand different things and suppliers introduce new products. All these inputs are in conflict with the organisation's strategy, hence exceptional leaders must be able to implement these trade-offs.

A leader must also ensure that every employee understands and realises the strategy. It is common knowledge that the mission and vision of some organisations were only understood by top management. That however violated the most important reason of a strategy. It is to notify and inform all employees and stakeholders about the organisation's daily operations and to align it towards the ultimate goal – direction.

The literature in chapter three indicated that to become a leader is not a step or decision but a process, and not every leader is comfortable in this role. It is therefore recommended that NDPW use the materials and models available to develop their managers to become leaders of the 21st century.

The literature further confirmed that an effective strategic leader should ensure that the organisation has a strategic vision and a structure, and the successful implementation thereof. A strategic leader must therefore ensure that all these key aspects are in place. The study also reveals a strong need for motivation. Peterson (2007: 65) highlights the importance of motivating a team and individual when goals are to be attained. Project leaders and top management need to realise the needs of a human when implementing a different way of doing business.

Furthermore, effective informal and formal communication practices are a prerequisite in sharing the strategic vision, informing all participants of strategies and priorities and ensuring that tasks and strategies are carried out efficiently.

7.6 CONCLUSION

The organisation must be able to respond to the change pressure of a competitive environment. Whatever the future holds, it is clear that NPWD realises the importance of developing existing skills and also expanding the skills, which will enable them to tackle new and changing challenges that are present.

By making use of the availability of the theories on project management and strategies, NPWD can drastically change the viewpoint of their staff and client departments.

As mentioned in chapter four, it is important to think of several ways of doing the same thing, and each decision should be screened to satisfy the high quality demand of any customer or client. Project managers strategies require competent managers and leaders in order to be successful. Another important aspect is how the current employees utilise their knowledge. For any organisation to be successful well-designed training and development programmes must be implemented and the system should be designed to use the knowledge to its fullest potential. The purpose is to develop organisational learning which is the most enjoyable, rewarding, engaging and powerful aspect of our collective and personal experiences. The need to become masters of learning and be able to learn about learning and processes are critical factors for the next century.

In conclusion, the ability of an organisation to sense changes in the environment is vitally important, since perceived changes in the environment signal the possible need for changes in strategy. The researcher feels that the strategies identified in the study as being the most effective together with recommendations or changes made to existing strategies and activities, could go a long way in making a considerable contribution to the enhancement of National Public Work Department's (Eastern Cape) ability to ensure continuous successful project delivery.

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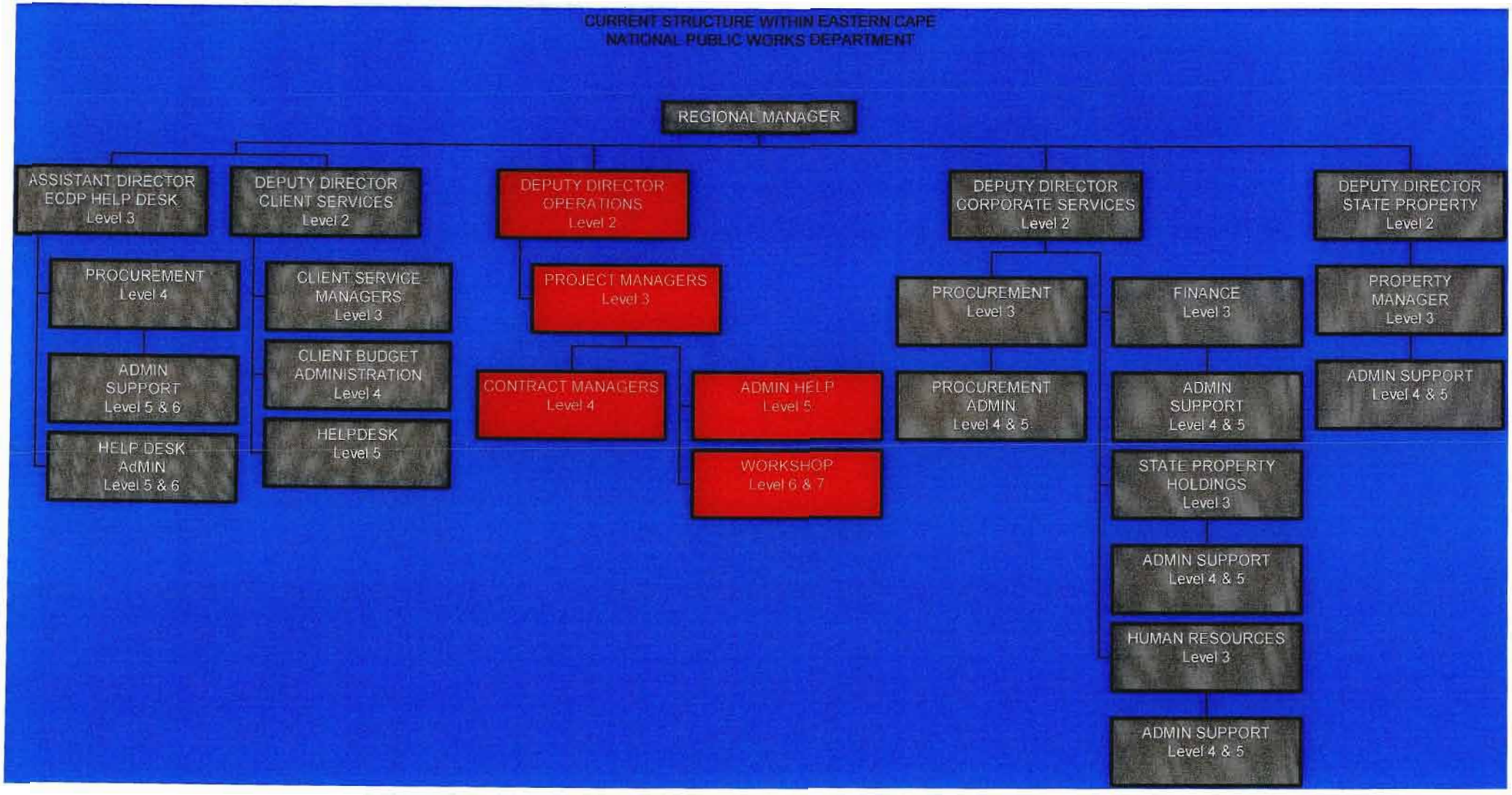
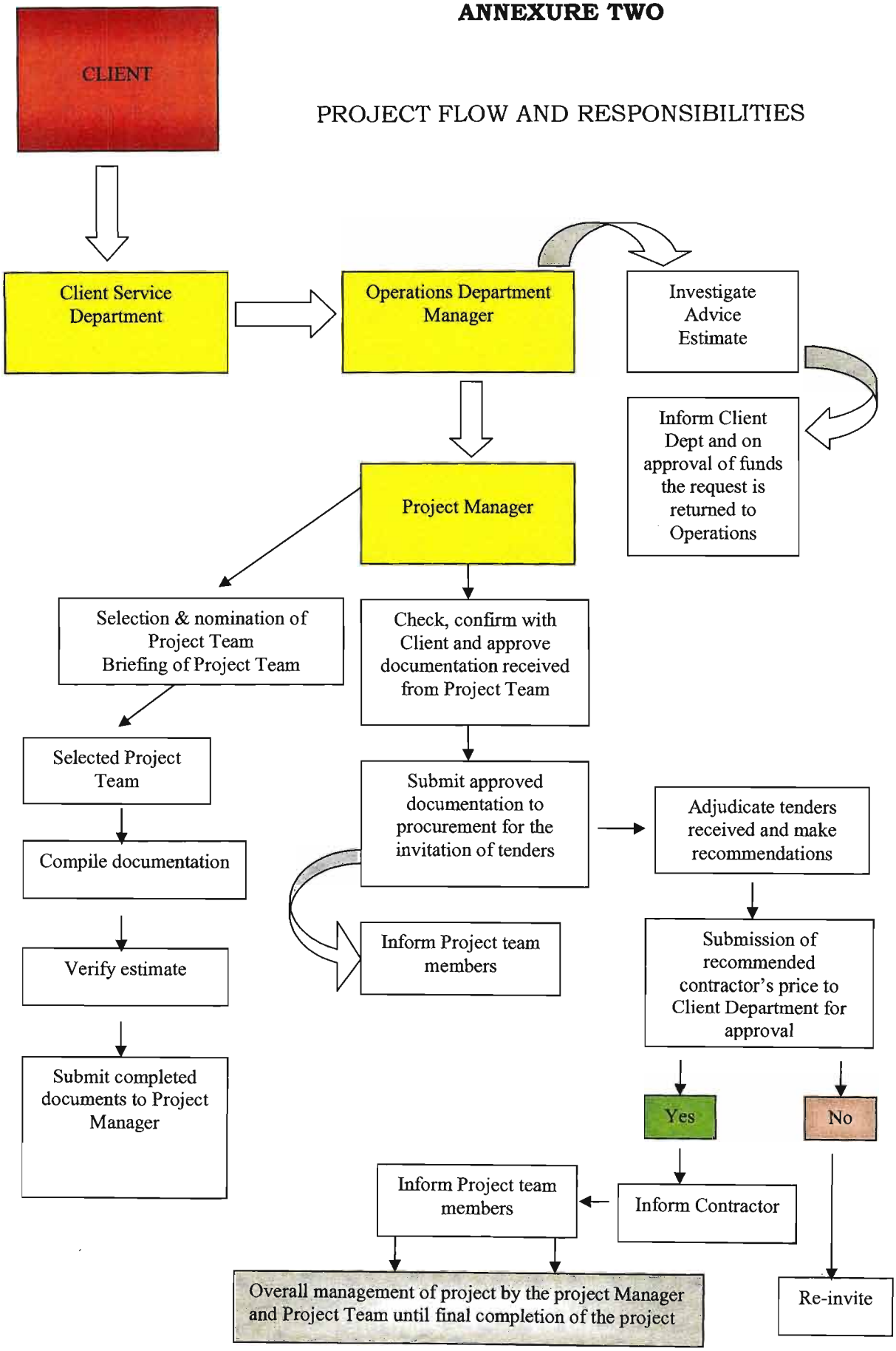

CURRENT STRUCTURE WITHIN EASTERN CAPE
NATIONAL PUBLIC WORKS DEPARTMENT
REGIONAL MANAGER
ASSISTANT DIRECTOR ECDP HELP DESK Level 3
DEPUTY DIRECTOR CLIENT SERVICES Level 2
DEPUTY DIRECTOR OPERATIONS Level 2
DEPUTY DIRECTOR CORPORATE SERVICES Level 2
DEPUTY DIRECTOR STATE PROPERTY Level 2
PROCUREMENT Level 4
ADMIN SUPPORT Level 5 & 6
HELP DESK AdMIN Level 5 & 6
CLIENT SERVICE MANAGERS Level 3
CLIENT BUDGET ADMINISTRATION Level 4
HELPDESK Level 5
PROJECT MANAGERS Level 3
CONTRACT MANAGERS Level 4
ADMIN HELP Level 5
WORKSHOP Level 6 & 7
PROCUREMENT Level 3
PROCUREMENT ADMIN Level 4 & 5
FINANCE Level 3
ADMIN SUPPORT Level 4 & 5
STATE PROPERTY HOLDINGS Level 3
ADMIN SUPPORT Level 4 & 5
HUMAN RESOURCES Level 3
ADMIN SUPPORT Level 4 & 5
PROPERTY MANAGER Level 3
ADMIN SUPPORT Level 4 & 5

ANNEXURE TWO

PROJECT FLOW AND RESPONSIBILITIES



ANNEXURE THREE

National Public Works Department:
Eastern Cape

QUESTIONNAIRE

Kindly complete the following questionnaire by circling it to all who have direct contact or dealings with the Operations: Project Management of National Public Works Department (NPWD).

The questionnaire is divided into the following two sections:

SECTION 1: PROJECT MANAGEMENT STRATEGY

SECTION 2: STRUCTURAL AND INFRASTRUCTURAL DECISION AREAS

SECTION 1: PROJECT MANAGEMENT STRATEGY

Please indicate your selection, by the means of a tick (✔) to the following questions related to project management strategy.

Project Management Strategy is the total pattern of decisions and actions, which set the role, objectives and activities of project management that they contribute to and support the organisation's business strategy.

1.1 Please indicate the number of years experience in a project related environment.

None	0 – 2 years	2 – 5 years	5 – 10 years	10 + years

1.2 Please indicate your level of project management qualification.

None	Trade certificate	PM certificate	PM diploma	PM degree +

1.3 How important do you regard the project management strategy to be in a public sector?

Not Important	Moderately Important	Important	Very Important	Exceptionally Important

1.4 How informed are you of the project management strategy deployed within NPWD of the Eastern Cape?

Not Informed	Moderately Informed	Informed	Very Informed	Fully Informed

1.5 What input did you have in the development/formulation of the project management strategy deployed within NPWD of the Eastern Cape?

No Input	Minimal Input	Average Input	High Input	Sole Responsibility

1.6 Do you consider the project management strategy deployed within NPWD of the Eastern Cape plant to be appropriate?

Not Appropriate	Moderately Appropriate	Appropriate	Very Appropriate	Exceptionally Appropriate

1.7 Do you consider the project management strategy deployed within NPWD of the Eastern Cape to be effective?

Not Effective	Moderately Effective	Effective	Very Effective	Highly Effective

1.8 Strategy is something that is alive and needs to be regularly amended as the market environment changes.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

1.9 Do most of the current strategic decisions address the needs and expectations of the client?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

1.10 Do the goals/objectives of other sections in the regional office support/compliment the goals/objectives of project management?

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

SECTION 2: STRUCTURAL AND INFRASTUCTURAL DECISION AREAS

The questions should be ranked according the following scales:

Level of Performance				
Rating Scale				
1	2	3	4	5
←				→
Very Poor	Poor	Acceptable	Good	Very Good

Level of Importance				
Rating Scale				
1	2	3	4	5
←				→
Not Important	Moderately Important	Important	Very Important	Exceptionally Important

Please indicate on how you would rate National Public Works Department of the Eastern Cape's effectiveness and efficiency on the related measurable items as well as the level of importance.

No.	**Measures of Effectiveness and Efficiency**	**Level of Performance**	**Level of Importance**
	Structural	1 ↔ 5	1 ↔ 5
2.1	Quality of service delivery		
2.2	Allocation of financial resources		
2.3	Flow of communication		
2.4	Use of information technology		
2.5	Office technology		
2.6	Product and service technology		

2.7	Project and service quality control		
2.8	Planning of projects and services		
2.9	Process flow of information		
2.10	Operational layout		
2.11	Solving operational problems with information technology		
2.12	Division of labour		
2.13	Job design		
2.14	Quality of project management standards and procedures		
2.15	Location of Offices and Sub Offices		

No.	**Measures of Effectiveness and Efficiency**	**Level of Performance**	**Level of Importance**
	Infrastructural	1 ↔ 5	1 ↔ 5
2.16	Leadership/management competencies		
2.17	Technical skills of project management staff members		
2.18	Project administration skills		
2.19	Project management qualification and training		
2.20	Efficiency of project management staff members		
2.21	Commitment of project management staff members		
2.22	Managing of projects		

2.23	Project delivery speed		
2.24	Project delivery dependability		
2.25	Person to person contact, including timeliness, courtesy, and professionalism		
2.26	The use of project management tools and techniques		
2.27	Empowerment/development of staff members		
2.28	Client satisfaction		
2.29	Project manager's accountability and responsibility		
2.30	Overall performance		

General Comments:

Thank you for completing the questionnaire. I once again would like to reassure you, that all information received is strictly confidential and will be used for research purposes only.

UNIVERSITY OF KWAZULU-NATAL
SCHOOL

Dear Respondent,

Masters Degree: Project Leadership and Management Research Project
Researcher: Shahied Davids (031-3147163)
Supervisor: Professor R. Taylor (031 - 260 1297)
Research Office: Ms P Ximba 031-2603587

I, Shahied Davids an MCOMM: Project Leadership and Management student, at the Leadership Centre, of the University of Kwazulu Natal. You are invited to participate in a research project entitled "Identification of Project Management Strategies, Activities and Principles for successful delivery in the Public Sector". The aim of this study is to identify strategies to be employed to improve project delivery in the Public Sector.

Through your participation I hope to understand your perception and viewpoint that can contribute towards a better service delivery. The results of the survey are intended to contribute to improved project delivery.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this survey. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Leadership Centre, UKZN.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above.

The survey should take you about 15-20 minutes to complete. I hope you will take the time to complete this survey.

Sincerely

Investigator's signature_____ Date_____

UNIVERSITY OF KWAZULU-NATAL
SCHOOL

Masters Degree: Project Leadership and Management Research Project
Researcher: Shahied Davids (031-3147163)
Supervisor: Professor R. Taylor (031 - 260 1297)
Research Office: Ms P Ximba 031-2603587

CONSENT

I.....(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT DATE

.....

ANNEXURE FIVE

DEPARTMENT OF PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Internal Memorandum

To:	All Client Department Representatives	Ref:	
From:	S. Davids	Office:	NPWD: Development Operations
Tel:	041-408 2044	Fax:	041-484 2838

Subject:	**BRAINWRITING SESSION/MEETING**

To all Client Department Representatives.

As per our telephonic discussion on 10th July 2003 I would like to officially invite you to a brainwriting session which will take place on 18th July 2003. The purpose of this meeting is to identify critical issues with regards to NPWD's service delivery.

Venue: Eben Donges Building
Conference Room - 2nd floor
Time: 10h00

Your input in identifying problem areas will assist in my research. It is to identify operations strategies that will provide above-satisfactory service to all client departments.

Your attendance will be greatly appreciated.

S. Davids: Project Manager

Date: 11 July 2003

Annexure SIX - Table of Respondents

Table of respondent to the questionnaire

LEVEL OF PERFORMANCE

Question		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Respondent	1	3	2	3	4	3	3	3	3	3	4	4	4	3	4	2	3	2	4	3	3	3	3	2	2	2	3	4	3	3	3
	2	2	2	3	3	3	3	3	3	3	3	2	4	4	4	3	2	1	5	3	3	4	3	3	3	3	2	3	2	4	3
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Total		89	66	106	115	108	106	101	90	99	127	106	113	116	138	99	75	61	141	98	108	106	100	91	97	73	73	134	85	96	96
Mean Response		2.70	2.00	3.21	3.48	3.27	3.21	3.06	2.73	3.00	3.85	3.21	3.42	3.52	4.18	3.00	2.27	1.85	4.27	2.97	3.27	3.21	3.03	2.76	2.94	2.21	2.21	4.06	2.58	2.91	2.91
Median		3	2	3	3	3	3	3	3	3	4	3	4	4	4	3	2	2	4	3	3	3	3	3	3	2	2	4	3	3	3
STDEV		0.77	0.66	0.65	0.51	0.45	0.65	0.66	0.67	0.61	0.76	0.70	0.66	0.51	0.68	0.71	0.76	0.67	0.63	0.59	0.63	0.74	0.64	0.66	0.61	0.74	0.65	0.66	0.50	0.52	0.52

ANNEXURE SEVEN - Table of Respondents

Table of respondent to the questionnaire

LEVEL OF IMPORTANCE

Question		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Respondent	1	4	4	4	3	3	4	3	3	3	2	2	3	4	4	5	5	3	4	4	4	4	3	4	3	3	3	3	4	4	4
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	Total	141	115	135	128	112	114	101	103	112	94	102	106	114	138	143	134	134	133	134	143	138	111	123	119	113	127	115	142	117	153
Mean Response	→	4.27	3.48	4.09	3.88	3.39	3.45	3.06	3.12	3.39	2.85	3.09	3.21	3.45	4.18	4.33	4.06	4.06	4.03	4.06	4.33	4.18	3.36	3.73	3.61	3.42	3.85	3.48	4.30	3.55	4.64
Median	→	4	3	4	4	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	3	4	4	3	4	3	4	4	5
STDEV	→	0.57	0.51	0.80	0.60	0.50	0.51	0.66	0.33	0.50	0.57	0.46	0.42	0.51	0.68	0.48	0.75	0.56	0.59	0.56	0.65	0.39	0.55	0.45	0.50	0.50	0.36	0.57	0.53	0.51	0.49