A MODEL FOR THE EFFICIENT STRATEGIC MANAGEMENT OF THE PORT OF NGQURA

BY

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This paper is submitted in partial fulfilment of the requirements for the Masters Degree in Business Administration at the Nelson Mandela Metropolitan University.

PROMOTER: Prof. B. Eksteen
DATE: December 2005
DECLARATION

“I MOKHESENG JOHNNY MOKHESENG hereby declare that:
- the work in this dissertation is my own original work;
- all sources used or referred to have been documented and recognised; and
- this dissertation has not been previously submitted in full or partial fulfilment of the requirements for an equivalent or higher qualification at any other recognised education institution.”

___________________  05 December 2005
M.J. MOKHESENG  DATE
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ABSTRACT

Ports are the backbone of the economy of countries endowed with shorelines and they spearhead foreign trade through the importation and exportation of goods to and from their domestic markets. The newly constructed Port of Ngqura will be the outlet for exports of semi-finished and finished goods produced in the Coega IDZ and will also receive raw material to be processed. Its position at the center of the world’s main trade routes, equidistant from American, European and the Pacific Rim regions makes the Coega IDZ the ideal location for any manufacturer adding value to raw materials, components and producing goods bound for the world markets.

Traditionally the ports have been developed and operated by the government enterprises. Recently all these are changing in many countries all over the world, with more private participation in the development and operations of the ports. This evolution has entrusted Port Authorities in taking control over port planning, broad regulation of shipping and port operations, applying conventions, laws and rules. South Africa is no exception to these winds of change, hence the adoption of the new port bill in managing all ports in the country. The Port of Ngqura will then serve as a benchmark for all other ports, with a new management structure which will help the port to be efficient. The study addresses the model for the efficient strategic management of the Port of Ngqura.

The model looks into placing the Port of Ngqura ahead of its competitors through efficiency in port management and operations. Efficient ports are catalysts, facilitators and attractors of international sea borne trade. Competitive efficiency is achieved by employing the best suited port equipments, facilities and technology to cater for customer’s needs and requirements. A successful port must be able to constantly adopt new roles in order to cope with the ever changing market environment.
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LIST OF ABBREVIATIONS

BOT – Build, Operate and Transfer
CDE – Computerised Data Exchange
DEA – Data Envelopment Analysis
EDI – Electronic Data Interface
IDZ – Industrial Development Zone
NCM – Ngqura Construction Management
NPA – National Ports Authority of South
Pmaesa – Port Management Association of Eastern and Southern Africa
SAPO – South African Ports Operations
TEH – Teleport Electronic Highway
VAF – Value Added Facilities
VAL – Value Added Logistics
VTIS – Vessel Traffic Information System
WBPRT – World Bank Port Reform Toolkit
CHAPTER ONE

INTRODUCTION, PROBLEM STATEMENT AND DEFINITION OF SELECTED CONCEPTS

1.1 INTRODUCTION

The abolition of Apartheid and acceptance of South Africa (SA) back to the international world has opened opportunities for SA. There has been some improvement in the economic growth. The South African coastline has several ports and with the construction of the new port (Port of Ngqura) by National Ports Authority of SA (NPA) in the Eastern Cape, the economy is set to improve more. Shipping has a direct bearing on the development process of a country. Port activities contribute to the economic independence of a country, which is vital to the political independence and they perform a strategic role in their trade.

Management of ports is therefore vital to the economy of the country. Robbins and Decenzo (2001:47) state that economies throughout the world are going through turbulent change. Change of the economy directly impacts on the management of organisations. Management of the future will find out that they cannot respond to a changing world by merely following procedures or techniques that have worked in the past (Trewatha and Newport, 1982:27).

Since the future is uncertain, developing scenarios is vital in terms of strategic planning. Van der Heijden (2005:15) says that the idea of strategising for the future is fundamentally based on the unpredictability of the future, of which some aspects that are assumed can be foreseen. The scenarios explore trends and situations which can work for future growth and sustainability of the organisations, taking into account the customer needs. Fink and Owen (2004:7) state that using scenarios is one of several systematically developed future
images that are used in combination with other scenarios in order to describe the scope of possibilities.

1.2 RESEARCH PROBLEM

The Port of Ngqura is an investment of about R3.2 billion by TRANSNET in the Eastern Cape region. The Port is situated at the Coega river mouth 20 km from Port Elizabeth and will serve as a gateway for exports produced in the Industrial Development Zone (IDZ) as well as surrounding areas. The port is being developed to provide container and bulk cargo handling capacity, and to complement the IDZ adjacent to the port.

The development of the port represents an opportunity to invest in the future of the Eastern Cape region, the most impoverished part of the country (SA), while guaranteeing the economic competitiveness and attractiveness of South Africa as a business destination.

When the Port of Ngqura is complete, the operation and successful management of this port will depend on the understanding of a changing world by the government and NPA. No successful organisation or its management can operate without understanding and dealing with the dynamic environment that surrounds it (Robbins and Decenzo, 2001:46). The development of strategic management scenarios for future management of the Port of Ngqura is important for its strategic direction.

The aim of the research is to develop those strategic management scenarios, which will improve and ensure efficient management of the Port of Ngqura.

This leads to the following problem, which will be addressed by this research:
What strategic management scenarios must be formulated by NPA in order to ensure efficient management of the Port of Ngqura and meet their customer needs?

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:

a) What are the specific requirements and needs of port customers?
b) What strategic scenarios can be identified for the port?
c) What management model can be formulated to help ensure efficient management of the Port of Ngqura?

1.4 DEMARCATION OF THE RESEARCH

Demarcating the research serves the purpose of making the research process manageable. The omission of certain topics does not imply that there is no need to research them.

1.4.1 Management level

The study will be limited to senior and middle management of the organisations (NPA and customers). All other levels such as supervisory management are excluded.
1.4.2 Organisation

NPA which is part of the TRANSNET Group will be used in this study. The motivation for this is that NPA is the government agency building the Port of Ngqura and manages all South African ports.

1.4.3 Geographical demarcation

The empirical component of this study will be limited to SA ports, with main emphasis in the following geographical areas:

- Eastern Cape: This region is defined as Statistical Region 02 and includes the industrial areas of Port Elizabeth and Uitenhage.
- Gauteng: This region is defined as Statistical Region 07 and includes the industrial areas of Pretoria and Witwatersrand.

The empirical survey will be conducted by a postal questionnaire and visits to ports. The aim of excluding other areas is to make it possible to handle the research process.

1.4.4 Organisations to be surveyed

The South African port community includes all seven commercial ports and their customers. For the purpose of this research, the survey will be limited to Eastern Cape region in Port Elizabeth. All seven port managers and NPA executive managers will be part of the sample to be used in the survey. The sample will include the current Port of Port Elizabeth customers and, shipping companies and shipping agents operating around the ports of South Africa.
1.4.5 Strategic management scenarios

This research will be limited to examining strategic management scenarios, which includes strategic direction and environmental scanning (forecasting). This looks into key uncertainties over which management have no control and then derive plausible and relevant scenarios from them. The strategic management process per se will not be dealt with.

1.4.6 Subject of evaluation

The field of managing strategic scenarios could be divided into the following:

I. Strategic management
II. Scenario management

1.4.7 Basis for the scenarios

It is intended in this study to develop various scenarios for managing a port strategically. The aim of the study is to develop strategic scenarios made up from integrating what the current literature reveals are the ideal scenarios with what NPA say are the best suitable for strategically managing the port.

1.5 DEFINITION OF SELECTED CONCEPTS

1.5.1 Management

Trewatha and Newport (1982:5) describe management as a process that includes the functions of planning, organizing, actuating and controlling an organisations operation in order to achieve a coordination of human and material resources essential in the effective and efficient attainment of objectives.
Mosley, Pietri and Megginson (1996:22) say that management is needed by all organisations for three primary reasons; to establish objectives, to maintain balance among stakeholders and to achieve efficiency and effectiveness. They refer to efficiency as the managerial ability to get things done and achieving higher outputs relative to inputs.

1.5.2 Strategic management

Wright, Pringle and Kroll (1994:17) describe strategic management as the continuous process of determining the mission and goals of an organisation within the context of its external environment, formulating appropriate strategies, implementing those strategies and exerting strategic control to ensure that the organisation’s strategies are successful in attaining its goals.

Morrison and Wilson (1996:2) write that strategic management does not replace traditional management activities such as budgeting, planning, monitoring, marketing, reporting and controlling. It integrates them into a broader context, taking into account the external environment, internal organisational capabilities and organisations overall purpose and direction.

1.5.3 Strategic scenarios

Strategy is described by Johnson and Scholes (2002:10) as the direction and scope of an organisation over the long term, which achieves advantage for the organisation through its configuration of resources within a changing environment and to fulfill stakeholder expectations. It does not precisely detail all future deployments (of people, finances and material), it does provide a framework for managerial decisions (Pearce and Robinson, 2003:4). Wright et al (1994:3) state that one can look at strategy from three vantage points; strategy formulation (developing the strategy), strategy implementation (putting the strategy into action) and strategic control (modifying either the strategy or its implementation
to ensure that the desired outcomes are attained). A strategy formulation will be applied in this study.

Johnson and Scholes (2002:107) describe scenario as a detailed and plausible view of how the business environment of an organisation might develop in the future based on groupings of key environmental influences and drivers of change about which there is a high level of uncertainty.

While constrained by the rules of the game and driven by the key uncertainties, they should evoke the same feelings as a really good novel (Ilbury and Sunter, 2001:87). They further say that each scenario must have a simple, vivid theme which is logically consistent in it, but differs materially from other scenarios in the set and they advocate two or three scenarios for any particular situation.

1.5.4 Seamless transport process

The Oxford dictionary meaning of seamless is unified, uninterrupted and continuous. Therefore, for the purpose of this study a seamless transport process is the efficient transport logistics which unify all the transport modes and deliver a continuous service without any interruptions from the customer depot to the point of destination.

1.6 ASSUMPTIONS

It is assumed that the strategic scenarios and management thereof, are dependent on the type of organisation and the industry it operates. The findings from other ports will be applicable in SA.
1.7 IMPORTANCE OF THE STUDY

The Port of Ngqura is in the construction phase and should be completed by year end of 2005. With the existing port of Port Elizabeth close by and, Port of East London and Port of Cape Town not far up the coast, the question is how this new port should be differently managed post construction phase in order to gain competitive advantage. Scenarios are especially useful in circumstances where it is important to take a long term view of strategy, probably a minimum of five years (Johnson and Scholes, 2002:107). NPA, which is the government agency of managing South African ports, should therefore develop the strategic management scenarios that will ensure efficient management of this port.

The scenarios will examine the present management of ports and the future long term planning of the Port of Ngqura. The development of scenarios will be strategically in line with the strategic direction of NPA and future economic direction of South Africa. The Port of Ngqura can be used as a pilot project to introduce new management systems that can improve on current strategies and ensure efficient management.

Morrison and Wilson (1996:9) say that the use of scenarios is to employ them as “test ground” for the organisation’s current strategy. They say another use of scenarios is to stimulate organisations to explore new strategy options. Scenarios portray different futures and these different futures would obviously require different strategies.
1.8 SUMMARY

The aim of this chapter was to identify the main and sub-problems of the research, to delimit the research and to state the importance of the research. It was also used to define key concepts such as management, strategic management, strategy and scenarios. The key assumptions made in the research were stated.

The following chapter reviews the related literature.
CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

The growth and sustainability of an organisation is dependent on whether management knows their business environment. Wright et al. (1994:49) write that organisational direction is difficult to determine unless management have clearly delineated the firm’s purpose. Knowledge of the organisation’s existence is important for management and their strategies.

Understanding the existence of the organisation, which is the mission, vision and goals of the organisation, is the first step in strategic management. Once all these are delineated, management can formulate the organisation’s strategy (Wright et al., 1994:75). Johnson and Scholes (2002:78) say that a framework for understanding the environment of an organisation is vital to identify key issues and ways of coping with change and complexity. Conducting the analysis of the organisation, environment and industry help create a favourable future and also help the organisation to prosper.

According to Morrison and Wilson (1996:13), the external analysis and internal assessment are used to enhance the organisation’s position relative to critical success factors and its ability to achieve stated goals. Johnson and Scholes (2002:99) state that if the future environment is likely to be different from the past, it is helpful to construct scenarios of possible futures. Scenarios help managers consider the different ways in which strategies might need to change depending on how the business environment might unfold.

The aim of this chapter is to identify the purpose of the Port of Ngqura, the concept of strategic scenario management and the management of ports.
2.2 PURPOSE OF THE PORT OF NGQURA

Ports are the backbone of the economy of countries endowed with shorelines and they spearhead foreign trade through the importation and exportation of goods to and from their domestic markets (Ports, 2005:9). The Port of Ngqura is the key to the success of South Africa’s first industrialised development zone (IDZ), the Coega IDZ and in turn it will boost the overall economy of the Eastern Cape.

The port will be the outlet for exports of semi-finished and finished goods produced in the IDZ and will receive raw material to be processed. The aim is to attract investors to the zone through its access to international markets and it would be a customs-free zone, on the basis that if raw materials are imported and products exported, excise on the income will not have to be paid.

Coega IDZ is the solution for a wide range of manufacturers and logistics service providers who want to be in the best position to serve both the world and African markets. The South African coast in the making of the Port of Ngqura offers this service, as is already served by all the world’s major shipping and logistics companies.

2.2.1 Socio-economics, politics and international trade

As indicated earlier, ports offer a strategic competitive advantage to a coastal country’s economic development. They are in effect, the magnet to foreign direct investment. Familoni (2004:8) says that port development has positive employment and revenue effects. Efficient ports are catalysts, facilitators and attractors of international sea borne trade.

The globalisation of the world economy has brought about tremendous international trade, and ports being part of the transport network, facilitate the
meeting of the demand of the international market with means of production available in the country (Inoue, 2002:17). The complex economic challenges of the 21st century highlight the relevance and importance of shipping and efficient port operations, given that over 90% of world trade is waterborne.

Import and export of cargoes depend upon the economic growth of a country and its trading partners. Conversely, international trade affects the world peace. The more a country trades with its international partners, the greater it understands different cultures and points of view. Ultimately all these lead to greater world peace (Inoue, 2002:18).

### 2.2.2 Strategic positioning

Ryan (2005:35) mentions that the Port of Ngqura is at the center of the world’s main trade routes, being equidistant from American, European and the Pacific Rim regions. Figure 2.1 illustrates the position of the port in relation to the rest of the world. Its position makes the Coega IDZ the ideal location for any manufacturer adding value to raw materials, components and producing goods bound for the world markets.

Botten and McManus (1999:258) state that a strategy crucial to achieving a strong competitive position on global routes is the establishment of a coordinated hub. The port is ideally positioned to offer the potential to be a trans-shipment hub, where large cargo ships from America, Europe and Asia can dock. Their cargo would then be split for shipment by feeder vessels to other destinations in South Africa and the rest of Africa.
2.2.3 Competitive advantage

According to Notteboom and Winkelmans (2001:83), efficiency oriented ports can achieve competitive advantage by either cost leadership or differentiation. Port of Ngqura is being developed to provide additional container, bulk and break-bulk cargo handling capacity. Alkhafaji (2003:127) says that the differentiation strategies have the advantage of offering better value to customers than rival organisations. This strategy attempts to make services offered seem unique in the customer’s eyes. The Port of Ngqura differentiates itself from other ports with its deep waters. Its deep waters provide a capacity for accommodating bigger container vessels than any of South Africa’s other seven commercial ports. The average ship can take 2 400 standard containers, but the type of ships that can dock at Ngqura (called post-Panamax ships) can take between 4 500 and 6 000 containers.
Figure 2.2 Model of Nqquura Harbour

Source: www.ports.co.za

Figure 2.2 above, shows a model of the Port of Nqquura which has a facility of five berths. The port can be differentiated from other South African ports because of its expansion potential to 32 berths, depending on the expansion and growth of the IDZ. There is an allocated area for the expansion of the port-landwards and this would require land dredging. Other big ports such as Cape Town and Durban have limited growth prospects as they are built within the metropolitan areas and can only expand by reclaiming land from the sea.

2.2.4 Transportation logistics

The location of the port has an effect on the transportation logistics of cargo to and from the port. According to Cheu, Chew and Wee (2003:292), locating the port near the major industrial areas it serves would improve the efficiency of the land transportation process. Port of Nqquura is located within the IDZ and this
should help to curb the long haul distance for import and export cargo between the port, warehouses and terminals. Cheu et al (2003:293) further say that approximately 4.9 to 6.8% savings in the total distance travelled could be achieved when the port is nearer to the major industrial zones. This may translate to an improvement in productivity and reduction in operating cost, which would benefit the shippers.

The global trade supply chain is set to expand further, with demand on cargo turnover time and costs. Murphy, Dalenberg and Daley (1995:26) say that ports need to offer a clear logistics advantage in terms of proximity to cargo hinterland, rail-road connectivity and other facilities for handling cargo.

To increase efficiency in the ports, major international shipping companies have started integrating their services into a broader spectrum of door to door delivery systems. They are incorporating rail-road haulage movements of cargo and thereby supplementing their ocean freight income.

2.3 CONCEPT OF STRATEGIC SCENARIO MANAGEMENT

Strategic management is a technique which can be used to create a favourable future and help the organisation to prosper (Morrison and Wilson, 1996:1). It emphasises the conditions that enable organisations to adapt to an increasingly turbulent world. The widely used strategic management tool in helping link the uncertainties of the future to the decision an organisation makes is, scenario planning. Godet (2001:2) mentions that strategic scenario planning can point the way to action while giving it both meaning and direction.

Scenario management includes the development of scenarios as well as their use within strategic planning and early diagnosis. It helps organisations to understand the integration of methods for handling uncertainty and competition (Godet, 2001:46).
Scenario planning is defined as a process of creating possible future stories that can impact the organisation. It is forward looking and helps prepare the organisation for the unthinkable. Strategic scenario planning is done in line with the organisation’s reasons of existence and within their broad scope of business.

2.3.1 Scenarios

Scenarios play a vital role in strategic thinking. They deal with two worlds, the world of facts and the world of perceptions. Organisations prepare strategically for the future by applying scenario planning. The acceleration of technological change, growing business volatility and globalisation, has made it more important than ever for organisations to have some knowledge of the future.

No one can predict the future with any detail or certainty. In periods of slow change in some industries of the past, reasonably reliable forecasts could be made. Mercer (1995:85) states that scenarios are only a means to an end. They identify the long term forces and consequent events, which the organisation’s conventional long range planning must address. The use of scenarios therefore should help ensure that as many as possible of the long term threats and opportunities facing the organisation are identified and addressed.

2.3.2 Scenario planning as a tool

Organisations’ difficulty lies in not knowing which future will evolve and as indicated earlier, scenario planning prepares them for future uncertainties and helps them deal with contingencies that might seem unthinkable. Van der Heijden (2005:111) mentions three ways in which scenario planning can help organisations deal with uncertainties:
1. It helps in understanding the environment better, allowing many decisions to be seen not as isolated events but as part of a process.
2. It puts structural uncertainties on the agenda. In this way scenario planning helps organisations to avoid taking undue chances. Preparing for possible changes can reduce over-exposure of capital and resources.
3. It helps organisations to become more adaptable by expanding their mental models of the business environment and thereby enhancing the perceptual capabilities needed to recognise unexpected events and take proactive action.

Like any other organisational strategic processes, scenario planning requires embracing and commitment of management. It is one of the important processes which organisations undertake to survive the ruthless business competition and the future unknown environment (internal and external).

Two views on scenario planning, foxy matrix and multiple scenarios planning are discussed. Scenario projects can be categorized as either adaptive or generative. In adaptive scenarios, projects are used to evaluate the existing business idea of the organisation and to adapt it for the future (development and use of scenarios are separate activities). Whereas in generative scenarios the two are intertwined in an iterative approach in which structuring of scenarios alternates with in-depth research of the questions raised, until a new and unique entrepreneurial insight about the business starts to take shape (Van der Heijden, 2005:219).

Ilbury and Sunter (2001: 38-106) use the foxy matrix for strategically planning for the future. Figure 2.3 below depicts the foxy matrix which identifies two questions for organisations, what do they and do they not control, and what is certain and uncertain about the future? The matrix helps identify the rules of the game, assess the key uncertainties, paint scenarios, evaluate realistic options and therefore make effective decisions.
1. **Rules of the game**

This refers to things that are certain and over which organisations have no control. An organisation has to examine the rules and resources required in the business.

2. **Key uncertainties and Scenarios**

It refers to key uncertainties over which organisations also have no control, and plausible and relevant scenarios are then derived from these uncertainties. Scenarios must be vivid and different enough to take organisations out of their comfort zone and create an idea of what the future might look like.
3. **Options**

This refers to options presented by the scenarios. The formulation of options is crucial and allows organisations to operate with more control in an uncertain environment.

4. **Decisions**

This is where decisions are made based on the preferred scenarios and linked to the preferred options. The strategic plans and programme of actions are located in this quadrant. It is here that organisations are certain about things happening and within their control.

### 2.3.3 Multiple scenario planning

Foxy matrix and multiple scenario principles are not far off from each other, as illustrated below by figure 2.4. The important aspect is that these processes should be treated as an organisation's strategic project. A dedicated scenario team should be established to focus on the project at hand.

The use of multiple scenarios in business and industry is growing, and it is one of the most effective ways business executives can maintain flexibility and preparedness in coping with unpleasant surprises. Feder (2002:120) mentions that multiple scenario planning is a qualitative form of simulation well suited for studying potential developments in a wide range of areas.

Multiple scenario planning is all about having a series of counter actions, each tailored to a specifically anticipated business scenario. It involves a careful systematic evaluation of a range of possibilities based on historical data, current conditions and trends. It examines several possible patterns of future developments, ranging from the most probable to the least probable, from the
most optimistic to the most pessimistic and when possible, a plan for coping with each possibility can be prepared.

Notably the scenario literature strongly suggests that the active construction process of the scenarios (phase 1 to 4) is as important for the organisation, even if the scenarios (phase 5 to 6) are not actually used, (Bood and Postma, 1994:6). The essential ingredients in the use of multiple scenarios are objectivity, logic, self-discipline and just management plain guts.

Feder (2002:122) summarises the advantages that development of scenarios offers as follows;

1. It requires a critical examination of the forces likely to shape future developments. These promote a deeper understanding of situational dynamics.
2. It makes explicit the key uncertainties, reducing the likelihood of surprise.
3. It highlights developments that are inevitable. Many of these inevitabilities are rarely obvious.
4. It indicates ways in which a system can change and ways in which it cannot.
5. It requires analysts and decision makers to consider ways to deal with contingencies.

Although scenario planning is a useful tool for identifying key environmental uncertainties, contingencies and their effects on performance, it has weaknesses like any other techniques. Miller and Waller (2003:96) identify four weaknesses which the technique has:

- Potentially unwieldy – without logical consistency and rigorous examination, scenarios can be nothing more than imaginative speculations.
- Non-quantifiable – as many of the inputs to a scenario planning process are not quantifiable, the output is likewise not quantifiable.
- Biases – envisioned scenarios may reflect current circumstances rather than future possibilities. Dominant personalities or groupthink can limit the possibilities considered.
- Lack of consensus – because scenario planning allows for divergent perspectives, participants may not converge on shared understandings or a common strategy.

2.4 MANAGEMENT OF STRATEGIC CHANGE

Change brought by strategic decisions and implementation of scenarios needs to be properly managed within the organisation. According to Phillips (2001:81), the pace of change today is such that none of us can keep abreast of it all and this has a negative impact on the overall management of organisations. People want to feel in control and it is well known that one of the primary factors in stress related illness is a feeling of lack of control over events.
Van der Heijden (2005:296) states that research by Pettigrew identified five conditions required for any planned change and adaptation to take place:

- Awareness in the organisation of the business imperative for change.
- Expression of the strategy in operational and actionable terms.
- Active recognition that people are the asset through which change is created.
- Exercise of leadership to put the “change project” on the agenda, and keep it there.
- Coherence of intentions and actions among all members of management.

During this transition of change, management needs to take control of situations and give direction to everyone involved. A direction style of managing strategic change which is essentially top-down management of strategic change can be employed. According to Johnson and Scholes (2002:547), it involves the use of personal managerial authority to establish a clear future strategy and how change will occur.

Management needs to accept uncertainties and therefore open up channels of communications within the organisation. Communication is important because all employees of the organisation need to make sense of what is happening for them. It is also important to choose the right time tactically to promote change within the organisation.

### 2.5 PORT MANAGEMENT

Ports are the connecting link between the shipping services and inland transport systems (rail, road and air transportation). They contribute in improving the quality of life by strengthening economies of countries. They act as an integral part of a chain of transport links designed to move cargoes from a place of low utility to a place of high utility and the right place in the right time with the right
technology at the right cost (Martin and Thomas, 2001:279). Their primary function is to provide for efficient, low cost, intermodal and intramodal transfer, inspection, storage and control of cargo.

The above mentioned function of the ports requires good and efficient management of the port community. Martin and Thomas (2001:280) define port community as those key commercial organisations whose combined services support the function of a port to transfer cargo between marine and inland transport modes. A port community consists of five organisational groups, namely:

- Providers of port infrastructure and facilities
- Providers of cargo handling services
- Maritime transport operators
- Inland transport operators
- Representatives of the cargo

Within the port system, one or more organisations as mentioned above fill the following roles (Murphy et al, 1995:41).

- Landlord for private entities offering a variety of services.
- Regulator of economic activity and operations.
- Planning for future operations and capital investments.
- Operator of nautical services and facilities.
- Marketer and promoter of port services and economic development.
- Cargo handling and storage facilitating.
- Provider of ancillary activities.

Port management is therefore governed by several parties with well defined short term objectives, and figure 2.5 below shows the physical interaction between members of the port community for efficient and effective port management.
Port terminals can either be privatised or be owned by the port authority and the above model is essential because it offers a simple, speedy, integrated and cost effective transfer of cargo between transport systems.

### 2.5.1 Port management models

Martin and Thomas (2001:283) mention a number of factors influencing the way ports are organised, structured and managed as follows:

- The socio-economic structure of a country (e.g. market economy)
- Historical developments (e.g. former colonial structure)
- Location of the port (e.g. within an urban area)
- Types of cargo handled (e.g. liquid and dry bulk, containers)

According to the World Bank Port Reform Toolkit (WBPRT) report (2002:16), four main categories of ports have emerged over time and they can be classified into four main models. These four main models are Public Sector Port, Tool Port,
Landlord Port and Fully Privatised Port or Private Service Port. These models are distinguished by how they differ with respect to their characteristics.

**Public sector port model**

Public sector port mainly focuses on the realisation of public interest. In this model, the Port Authority offers a complete range of services required for the functioning of the seaport system. The port owns, maintains and operates every available asset (fixed and mobile), and cargo handling activities are executed by labour employed directly by the Port Authority. In some developing country ports, the cargo handling activities are executed by a separate public entity which usually reports to the same government department as the Port Authority.

**Strength:** Superstructure development and cargo handling operations are the responsibility of the same organisation (unity in command).

**Weakness:** There is no or a limited role for the private sector in cargo handling operations. There is less problem-solving capability and flexibility in case of labour problems, since the port administration also is the major employer of port labour. There is lack of internal competition, leading to inefficiency and there also is wasteful use of resources and under-investment as a result of government interference and dependence on government budget. Operations are not user-oriented or market oriented, and there is lack of innovation.

**Tool port model**

As with the public sector port, the tool port focuses on the realisation of the public interest. In the tool port model, the Port Authority owns, develops and maintains the port infrastructure as well as the superstructure. Although the equipment is owned by the Port Authority, the cargo handling activities are contracted out to the private sector and these generate conflicts between Port Authority staff and terminal operators, which impede on the operational efficiency.
Strength: Investments in port infrastructure and equipment (in particular ship/shore equipment) are decided and provided by the public sector, thus avoiding duplication of facilities.

Weakness: The port administration and private enterprise jointly share the cargo handling services (split operation), leading to conflicting situations. Because the private operators do not own major equipment, they tend to function as labour pools and do not develop into firms with strong balance sheets. This causes instability and dims the future expansion of the companies. There also is risk of under-investment and lack of innovation.

**Landlord port model**

The landlord port model is characterised by its mixed public-private orientation. Under this model, the Port Authority acts as regulatory body and landlord, while the port operations are carried out by private operating companies. The Port Authority leases out the port infrastructure to private operating companies and they provide and maintain their own superstructure, and also purchase and install their own equipment as required by the market.

**Strength:** A single entity (the private sector) executes cargo handling operations, owns and operates cargo handling equipment. The terminal operators are more loyal to the port and more likely to make needed investments as a consequence of their long term contracts. Private terminal handling companies generally are better able to cope with market requirements.

**Weakness:** Risk of over-capacity as a result of pressure from various private operators and misjudgment on proper timing of capacity additions.
Private Service port model

In the private service port model, the port land is privately owned as well as the infrastructure including the superstructure. This requires the transfer of land ownership from public to private sector. In this model, the government no longer has any meaningful involvement in the port sector.

Strength: Maximum flexibility with respect to investments and port operations. No direct government interference. Ownership of port land enables market oriented port development and tariff policies. In case of redevelopment, the private operator probably realises a high price for the sale of port land. The often strategic location of port land may enable the private operator to broaden its scope of activities.

Weakness: Government may need to create a Port Regulator to control monopolistic behaviour. The government (be it national, regional or local) loses its ability to execute a long term economic development policy with respect to the port business. In case the necessity arises to re-develop the port area, government has to spend considerable amounts of money to buy back the port land.

2.5.2 Government involvement

According to Martin and Thomas (2001:291), the need for the government intervention in markets for port services is related to the unique economic characteristics of seaports. Below are reasons for government involvement.

- The provision of port services entails large fixed costs and low marginal costs.
- A relatively large minimum initial capacity of basic infrastructure is required for technical reasons.
- The infrastructure is frequently indivisible and as a result increases in infrastructure capacity can only be realised in quantum chunks.
• Both initial construction and port expansion require large amounts of capital.
• The life span of port infrastructure projects often exceeds the time horizon acceptable for private investors and commercial banks.
• Basic port infrastructure is immobile and has few alternative uses.

2.5.3 Role of port authority

A successful port must be able to constantly adopt new roles in order to cope with the ever changing market environment. According to Notteboom and Winkelmans (2001:78), the market environment calls for a constant re-assessment of port management strategies for reasons mentioned hereunder.

• To accommodate the large port clients – Horizontal and vertical integration in the transport industry result in a concentration of power at the port demand side.
• To secure investments – Ports are normally forced to make investment decisions for the future.
• To deal with increased port competition – Ports where ships call depend upon the strategy of shipping lines with respect to their service networks.
• Instability in the port industry – Competition and the fear for under utilisation of terminal facilities put a strong downward pressure on the levels of port dues and port handling rates.
• Diseconomies of scale in load centers – This emerges where hub ports lack space for further expansion and longer turnaround times occur.

Port authorities normally provide the necessary port infrastructure including quays, dock yards and maintenance thereof. In recent years, terminals are being privatised and the private sector therefore becomes responsible for the transhipment activities and port services (storage and warehousing). In some instances port authorities generally act as terminal operators too. Notteboom and
Winkelmans (2001:84) state that port authorities can play an important role in the creation of core competencies and economies of scope in the following areas.

- Value added logistics and logistics polarisation
- The development of information systems
- An active participation in the planning and implementation of new transport services.
- Port networking – Development of strategic relationships with other transport modes is one of the important roles for port authorities in the 21st century.

2.5.4 Port competition

Recently globalisation has brought more competition in many industries. The Port industry is no exception, as many ports are striving to promote more ships calling and attracting more cargo. Song (2003:30) proposes a new strategic option for the port industry known as co-opetition. It is a combination of competition and co-operation which aims at developing a paradigm for port co-operation from the perspectives of economics and strategic management. It also explains the current and prospective co-opetition between the ports in Hong Kong and South China.

Driving forces for port competition and co-operation is globalisation and shipping alliances. Globalisation has allowed all countries to compete in one global market. Song (2003:31) further says that the larger size of vessels and their intermodality also influence the competition between ports. Due to the depth limits of many ports, fewer ports are able to directly serve the larger vessels.

Objectives of port co-opetition is therefore to achieve rationalization (hence cost savings), to enjoy the benefit of risk sharing and to enhance customer service
through expanded facilities (Song, 2003:33). Co-opetition is a way of collaborating to compete.

2.5.5 Factors determining port of choice

Ships and cargoes calling at ports are essentially what ports are competing for. Shipping companies (hereafter called carriers) and shippers also have their criteria and factors to choose their port of choice. Notteboom and Winkelmans (2001:88) say that the overall transport service, competitiveness (port operations and commercial practices), climatic conditions and the range of port facilities available to shippers and carriers are among factors determining a port of choice.

Bunkering costs and port charges, such as pilot's fees and cargo handling charges have influence in which port a shipper uses (Zan, 1999:369). Some port authorities have a port tariff structure which offers negotiated discount rates to volume shippers. Zan (1999:371) further says that to get as many ships calling as possible, port administrators should consider policies on number and scale of terminals, and competitive port charges.

According to Zan (1999:377), the following criteria are considered to be the most important for the three categories of shipper.

1. Large operator:
   - The nearest port is the most favourable,
   - Choose the nearest local port as base port if ships call,
   - The frequency of the liner is an important factor in port choice,
   - Attach importance to port and carrier’s service, and
   - Attach importance to frequency of call in carrier choice.

2. General shipper:
   - The nearest port is the most favourable
   - Choose local port first of all if there are liners calling
   - Attach importance to port and carrier’s service, and
• Attach importance to frequency of call in carrier choice.

3. Forwarders:
   • Attach very much importance to frequency of call in port choice
   • The nearest is the most favourable, and
   • Attach importance to frequency of call, sailing time, freight and service in carrier choice.

Figure 2.6 below shows the relationship between the three parties in the shipping transportation market.

Figure 2.6 Relationship between the port authority, carrier and shipper

Source: Zan (1999:372)

2.6 CUSTOMER INVOLVEMENT

The ultimate purpose and fundamental reason for the organisation’s existence is to serve its customers. The culture which should prevail within the organisation is that every employee should be focused on increasing the level of customer satisfaction and continually seeking ways to increase levels of value to customers and to assure that customers receive exactly what they were
promised. A philosophy and culture of never ending improvement and, total quality management leads first to customer satisfaction and then to customer delight (Morgan, 1994:7).

The full involvement of customers in the organisation’s product or service processes is vital because it gives an organisation a first hand experience on what the needs of customers are. The concept of customer-in includes principles such as full customer satisfaction and customer is the judge.

1. Survival- Full Customer Satisfaction: According to Brink and Berndt (2004:48), customer satisfaction can be described as the degree to which an organisation’s product or service performance matches up to the expectations of the customer. Customer satisfaction is best described by the Teboul model, which is shown below in Figure 2.7. The customer’s needs are represented by the circle, and the square depicts the product or service offered by the organisation. Total satisfaction is achieved when the offer matches the need, or the circle is superimposed in the square. The goal is to cover the expected performance level better than the competitors.

![Teboul model](source.png)

**Figure 2.7** Teboul model – measuring customer satisfactions

**Source:** Morgan (1994:17)
The part of the square that lies within the circle is perceived by the customer as satisfying, and the part outside the circle is perceived as unnecessary. It is important that the organisation listen to the “voice of the customer” and ensure that its marketing, design, production, operations, service level and distribution processes truly meet the expectations of the customer (Besterfield, 1994:38).

2. The Customer is the Judge: The organisation must continually solicit and monitor customer feedback, because this enables quick discovery of customer dissatisfaction, relative priorities of quality, comparability of performance with competition and determine opportunities for improvement. Customer feedback has become so important that it drives new product or service development (Besterfield, 1994:42).

Research has indicated that there are five key elements for effective customer service, as depicted by figure 2.8 (Brink and Berndt, 2004:50).

1. People and processes: One of the most important drivers of effective customer service is the employees that must deliver the service. The policies, procedures and support regarding customer service must be in place for employees to operate efficiently.
2. Telecommunications support: There should be enough telecommunication technical support to ensure that every customer calling receives prompt service.

3. Computer service support: Basic requirements of computer systems support such as integrated databases, quick response time, etc. should be in place.

4. Field organisation support: Research has shown that customer satisfaction is amplified when problems are resolved at the level closest to the customer.

5. Preventative analysis: There should be a feedback loop to ensure that a job is done the right way the first time around.

2.7 PORT OPERATIONS

As indicated earlier, port privatisation is a process which is continuing in many ports around the world. In an interview by African Shipping Review (2003:13), Mr Siyabonga Gama, 2003 chairman of Port Management Association of Eastern and Southern Africa (Pmaesa) and NPA chief executive, says that the whole notion of having landlord port authorities and then allowing the private sector to come in and exploit cargo handling opportunities is really beginning to bear fruit. It gives port authorities ample time to analyse port performance, how it can be improved and enhanced so that there is really a new vibrancy.

Modern port operations require an efficient operation of the port facilities. These include calling for the directing of the activities of a wide number of parties, from equipment suppliers to workforce and ship owners to logistics service providers (Narasimhan and Palekar, 2002:63). It is therefore critical to have a high throughput of ships at the port and this requires that the time spent on each ship is as small as possible.
Like any other operation, there are many things which could go wrong in the activity flow of port operations. According to Beyeler, Conrad, Corbet, O'Reilly and Picklesimer (2004:94), potential disruptions to port operations exist in a number of areas such as telecommunications, electric power supply, labour and port security.

### 2.7.1 Measure of port efficiency

An efficient port raises the productivity of prime factors of production (labour and capital) and profitability of the producing units, thereby permitting higher levels of output, income and employment (Park and De, 2004:53). They further write that port managers are often under great pressure to improve the performance of their ports. According to Park and De (2004:54), to improve performance a constant evaluation of operations or processes related to providing, marketing and selling of services to users is required.

In a fast changing world, it is crucial to monitor the performance of the port (measuring the level of efficiency and competitiveness). Park and De (2004:55) say that the use of Data Envelopment Analysis (DEA) which is a tool that can evaluate performance and benchmarking of port services in the context of multiple inputs and outputs is important. DEA has four stages as shown on figure 2.9 below.

![Data Envelopment Analysis model](source: Park and De (2004:56))
• Stage1. Productivity: input (berthing capacity, cargo handling capacity) and output (cargo throughput, number of ship calls)
• Stage2. Profitability: input (cargo throughput, number of ship calls) and output (revenue)
• Stage3. Marketability: input (revenue) and output (customer satisfaction)
• Stage4. Overall efficiency: input (berthing capacity, cargo handling capacity) and output (customer satisfaction).

Port efficiency can therefore be measured in terms of productivity, profitability and marketability. Elements such as time, service quality and reliability of entire transport chain in the port community form the core measure of port efficiency.

2.7.2 Intelligent management

Today, modern terminals are systems driven and focusing on information technology and eBusiness applications to improve planning and control procedures, thus raise terminal efficiency (Martin and Thomas, 2001:287). Szirmai (2005:117) refers to technology as the state of knowledge about how to do things, in particular how to produce valued goods and services for the satisfaction of human needs.

According to Qifan (2005:21) one of the biggest ports in the world, Port of Shanghai, employs five types of intelligent technology for efficient management.

1. Intelligent handling system – Applicable to operational department and it controls all activities on the terminal for efficiency.
2. Multi-grade container management system – Applicable to the management and it measures the handling capacity and service quality of a container terminal. It makes it easy for management to make decisions on the terminal operations.
3. Container handling equipment remote control and breakdown alarm system – Applicable to engineers and technicians, in the equipment repairing process the computer continuously supervises the working situation of the equipment.

4. Electronic-business port system – It uses the Electronic Data Interface (EDI) system which links the port with various organisations and major shipping lines using ports.

5. Computer emulation system – Mainly applicable to the port investors and it helps them to make an insight research and analysis on the terminal throughput capacity, the operational bottleneck, handling equipment optimisation and the minimum investment needed.

Other activities that keep ports successful are the Teleport Electronic Highway (TEH), which links various ports worldwide to exchange information on containers loaded electronically and the Vessel Traffic Information System (VTIS), which facilitates safe movement of ships in and out of the port.

The administrative effectiveness side of a port is mainly based on its documentation, regulations and work schedules. To meet the efficiency criterion, port documentation should be easy to understand and be compatible with the documents used in the trade and transport sector (Ports, 2005:21). A computerised data exchange (CDE) system ensures improved efficiency with regard to paperwork by allowing cargo to enter, register and exit the port much quicker.

2.7.3 Equipment and human capital

Efficiency in the ports is achieved by employment of technology and equipment which are capable of effectively doing the job at hand. The ports have to be equipped with the most modern cranes, straddle carriers, etc to be able to cater for the needs of customers (Ports, 2005:25).
The use of equipment like the Super Post Panamax Liebherr and IMPSA cranes, improve productivity and boost efficiency in the port terminals. Ports and Shipping (2004:4) reports that the demand on stacking space and ship turnaround time at the port terminals have been increasing, and the right equipments to improve stacking and create more efficient operations are forever in demand. The modern straddle carriers are capable of stacking containers four high and thus effectively increasing stacking capacity.

![Figure 2.10 IMPSA cranes](Source: www.impsaportsystems.com)

The Super Post Panamax Liebherr and IMPSA cranes, as shown above on figure 2.10 afford the ports with competitive advantage over others in that they are both capable of loading or discharging the largest container ship in service. These cranes can operate by means of twin lift spreaders, are able to lift two six meters containers at the same time and, have faster trolley and lifting speeds. SAPO reports that with cranes like these, the ship turnaround time can be improved by between 10% and 15% in South African ports.

An efficient port requires not only adequate infrastructure, superstructure and equipment, but also good communications and information technology systems,
and especially a dedicated and skilled management team with a motivated and trained workforce. As part of an ongoing organisational strategy, organisations need to believe in human capital investment (Alexander, 1997:5).

Knowledge and skills, education and training of employees should be at the core of the organisation’s policies. Education is a very important source of a country’s economic growth. It is an economic investment because it enhances the stock of human capital. Therefore, economic development and efficiency are not possible without education and investment in human capital which is highly productive (Familoni, 2004:4).

2.7.4 Port terminal facilities

As indicated earlier on figure 2.2, the Port of Ngqura would initially comprise of the liquid bulk, dry bulk and the container terminal facilities. For these terminals to be competitive, a warehouse for stuffing and stripping as well as for dry reefer and hazardous cargoes, and temperature-controlled warehouse for temperature-sensitive cargo would have to be accommodated. The products produced in the IDZ need a good and effective storage facility for exporting, and in turn these create a competitive advantage for the port.

The ports also create new services to boost their economic performance, as well as their attractiveness to existing and potential customers (Port and Shipping, 2004:49). These in turn help maintain and improve a port’s competitive position. When developing new services, it is important to pay attention to the value adding potential of the services. Figure 2.11 below summarises activities classified as “Value Added Services”.

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The safe keeping and handling of cargo from receipt to delivery is the legal responsibility of port authorities. Port and Shipping (2004:63) says that security at seaports should be so organised as to cover all areas of operation. These comprise landside operations, cargo areas, anchorages and waterways. Eliminating easy public access creates a semi-sterile inspection area and so increases the ability of port authorities to recognise illegal activities. These reduce the threat of smuggling, theft and vandalism at the port terminals.

The employment of Port Security Information System (PSIS) at the ports, for collection of any information pertaining to breaches of security is vital. The system integrates security operations with business cargo handling and provides sharing of global security overviews.
2.7.5 Current port trends

According to Palmer (1999:3), there are seven main current trends affecting the development of seaports throughout the world. They are listed below as follows;

1. Heightened levels of investment in port facilities, arising first from the increased size of vessels placing demands on ports to be deep enough, to continually upgrade their facilities in terms of quay length and strength, and from related need for equipments to cope with unitised cargoes and to handle large volume break-bulk trades.

2. Ports are now veering towards being specialist terminal-based, with focus towards freight specialisation.

3. Changing working practices, including greater automation and flexibility in the working environment, in which fewer workers may be employed relative to past practice.

4. Within regions, the development of a hierarchy of main seaports, at which container liner ships unload at hub ports and service feeder ports which deal with trans-shipped cargoes.

5. Increasing competition between seaports, and between sea and other forms of transport.

6. The blurring of distinctions between stages of the transport process with more emphasis on development of hinterland connections, so that seaports become links in a complex transport chain which may include inland port terminals.

7. The effect on seaport prospects of political decisions favouring trade generally.

8. Changes in the modes of owning and operating ports, in particular privatisation.

9. Separation of Port Authority and Port Operator. Port authority is increasingly getting focused on policy and regulatory role while a range of private port operations and port providers are taking over a range of port related services.
2.8 SUMMARY

The aim of this chapter was to identify the purpose of the Port of Ngqura, look into the concept of strategic scenario management and, to examine ports management and operations.

Strategic scenario planning handles uncertainties of organisations in a systematic and realistic manner which provides a real competitive advantage to the organisation. It is a process that paves the way for a strategic conversation within an organisation about the future and serves up a strategic insight without getting entrapped in too much detail.

The strategic scope of port authorities goes beyond that of facilitating and creates core competencies and economies of scope by an active engagement in the development of port related activities.

The following chapter elucidates the methodology used for the research.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The aim of this chapter is to elucidate the research methodology and the theory upon which the chosen methodology is based. Leedy and Ormrod (2005:2) define research as a systematic process of collecting, analysing, and interpreting information (data) in order to increase understanding of the phenomenon about interest or concern is being expressed.

A well planned and scientifically executed research project provides valid data upon which to base appropriate conclusions. The underlying and unifying element of any research project is its methodology. Research methodology has two primary functions, to control and dictate the acquisition of data, and to corral the data after their acquisition and extract meaning from them (Leedy and Ormrod, 2005:6).

3.2 RESEARCH DESIGN

According to Leedy and Ormrod (2005:94), research studies are categorized into two broad categories, quantitative and qualitative research. Qualitative research focuses on phenomena that occur in natural settings and involves studying these phenomena in all their complexity, while Quantitative research involves either identifying the characteristics of observed phenomena or exploring possible correlations among two or more phenomena and involves not changing or modifying the situation under investigation (Leedy and Ormrod, 2005:133).
Leedy and Ormrod (2005:108) identified numerous research methodologies that can be used, depending on the research objective. These methodologies include:

- **Case study** – a qualitative research in which in-depth data are gathered relative to a single individual, program or event, for the purpose of learning more about an unknown or poorly understood situation.
- **Historical research** – an attempt to solve certain problems arising out of a historical context through gathering and examining relevant data.
- **Ethnography** – a type of qualitative inquiry that involves an in-depth study of an intact cultural group in a natural setting.
- **Observation study** – a type of quantitative research in which a particular aspect of behaviour is observed systematically and with as much objectivity as possible.
- **Ex post facto research** – an approach in which one looks at conditions that have already occurred and then collects data to investigate a possible relationship between these conditions and subsequent characteristics or behaviors.
- **Casual-Comparative method** – a research method used to observe existing conditions and researches back through the data for plausible causal factors. It is the “detective method” in which the crime is discovered and then the cause or motivation for the crime is sought.

Historical and descriptive methods of qualitative research are more activity demanding, more complex, time consuming and distracting than other research methodologies. In this research study, the observation study, case study and the casual-comparative methods are used to address the research problems.

The three research sub-problems as mentioned earlier are as follows;

- **d)** What are the specific requirements and needs of port customers?
- **e)** What strategic scenarios can be identified for the port?
f) What management model can be formulated to help ensure efficient management of the Port of Ngqura?

The first sub-problem required the collection of specific and relevant data from the port customers and, the last two necessitated desk research of available literature to create a background of what can be formulated for the Port of Ngqura.

3.3 RESEARCH DATA

According to Leedy (1997:96), the ultimate objective of research is new knowledge and understanding. In the quest to acquire this knowledge and understanding, researchers need to carefully consider the type of data required. Leedy (1997:99) defines data as those facts that any particular situation affords or gives information or impressions to an observer. Leedy further says that research seeks, through data, to discover underlying truths.

There are two types of data, primary data which are often most valid, most illuminating and most truth manifesting, and secondary data which are derived not from the truth itself, but from the primary data instead.

Leedy and Ormrod (2005:89) continue by saying that researchers need to recognise that even the most carefully collected data may have an elusive quality about them and that, at a later point in time they may have no counterpart in reality whatsoever. Data are volatile and they evaporate quickly, and not all data that come to the researcher’s attention are acceptable for use in a research project.

Leedy (1997:213) warns that data from a research project which are obtained in a qualitative survey are particularly susceptible to distortion as a result of bias in the research design. It therefore is important to assure that data are free of bias.
3.4 DATA COLLECTION

According to Leedy and Ormrod (2005:143), researchers can use observations, interviews, objects, written documents, audiovisual materials, electronic documents, and anything else that can help them answer their research questions. The most common type of data collection methods are interviews, questionnaires and written documents. Leedy and Ormrod (2005:144) further say that the potential sources of data are limited only by the researcher’s open mindedness and creativity.

The methods used mainly in this study are written documents (literature) and questionnaires. According to Saunders, Lewis and Thornhill (2000:278), a questionnaire is a technique of data collection in which people are asked to respond to the same set of questions in a predetermined order. Questionnaires often make use of checklist and rating scales.

Two types of questionnaires are identified (Saunders et al, 2000:278);

- Interviewer administered questionnaires which include telephone and structured interviews. A sample of people is normally interviewed.
- Self-administered questionnaires which include online and postal questionnaires. Here questionnaires are normally mailed, faxed or emailed and a return mechanism is included.

Leedy and Ormrod (2005:185) say that questionnaires have their drawbacks as well, in that the majority of people receiving them do not return them and hence a low return rate may occur. There are no interviewer interventions available for probing and explaining.

In this research a comprehensive questionnaire is developed and emailed together with a covering letter to a sample of relevant respondents. The primary purpose of the cover letter is to give a brief reason for the study and also to
induce the respondent to complete the questionnaire. The cover letter and questionnaire used in this study are attached as annexure A and B respectively.

### 3.5 QUESTIONNAIRE DESIGN

Layout and design are important aspects of a questionnaire. They are both important for the self-administered and interviewer-administered questionnaires. Naumann and Giel (1995:146) say that designing a good mail questionnaire really consists of much more than just designing good questions. A good cover letter is essential to motivate the respondent and directions and transitions must be clear and understandable. Once all these general issues are addressed, then attention can shift to the questions.

According to Naumann and Giel (1995:145), most questionnaires are highly structured, consisting predominantly of closed-ended questions. The reason for this is that many respondents don’t bother responding to open-ended questions. The first few questions should be general, easy to answer, and directly related to the research purpose that was stated in the cover letter.

Below are twelve guidelines outlined by Leedy and Ormrod (2005:190), for developing a questionnaire that encourages people to be cooperative and yields responses that can be used and interpreted.

1. Keep it short.
2. Use simple, clear, unambiguous language.
3. Check for unwarranted assumptions implicit in the questions.
4. Word the questions in ways that do not give clues about preferred or more desirable responses.
5. Check for consistency.
6. Determine in advance on how to code the responses.
7. Keep the respondent’s task simple.
8. Provide clear instructions.
9. Give a rationale for any items whose purpose may be unclear.
10. Make the questionnaire attractive and professional looking.
11. Conduct a pilot test.
12. Scrutinise the almost –final product carefully to make sure it addresses the research problem.

The more specific questions result in better responses and questions should also be relevant to the aim of the research study. In this study, the research questionnaire is divided into five sections, which are briefly discussed below.

- Section A covers the demographic details of the respondents.
- Section B covers the purpose of the Port of Ngqura and also determines whether the port will serve the requirements of the port community.
- Section C covers the concept of strategic planning. The aim is to determine how widely this management tool is used by organisation to plan for the future.
- Section D covers the port operations of the ports. Here the aim is to determine what measures need to be taken to improve efficiency in the ports.
- Section E covers the customer satisfaction and determines what the current customer requirements and needs are.

The following questions address the three sub-problems as mentioned in chapter one.

a) Section E of the questionnaire addresses the sub-problem “What are the specific requirements and needs of port customers?”

b) Section C of the questionnaire addresses the sub-problem “What strategic scenarios can be identified for the port? “

c) Question B.7 of the questionnaire addresses the sub-problem “What management model can be formulated to help ensure efficient management
of the Port of Ngqura?” Chapter five further addresses this sub-problem in more details.

### 3.6 POPULATION AND SURVEY SAMPLE

Cooper and Emory (2001:769) define population as the study object which may be individuals, groups, organisations, human products and events or the conditions to which they are exposed. In this study the population comprises of all members of the port community and port customers in South Africa. To have a certain control over the research, a sample of the entire population is selected.

Naumann and Giel (1995:97) define sampling as a process of selecting representatives from a population, in order to determine the characteristics of the variables under study. The results obtained from the sample can be used to generalise about the entire population. Leedy and Ormrod (2005:199) say that the sampling procedure should be carefully planned, not to have a distorted conclusion of the data collected.

According to Leedy and Ormrod (2005:1999), there are two major sampling approaches, namely probability and non-probability sampling. In this study, a non-probability sampling is used. The sample comprise of seven South African port managers, executive managers of NPA and South African Ports Operations (SAPO), shipping companies and customers of the Port of Port Elizabeth. A total number of 63 respondents were identified.

#### 3.6.1 Response rate

Response rate refers to the number of completed questionnaires returned. The questionnaires were emailed, faxed and some hand posted to respondents. The purpose of the study was explained through the cover letter. In this study the aim
was to achieve a response rate of over 60 per cent for validity of data. A response rate of 46 percent was achieved and it can be concluded that the results obtained from the study are valid because of the representation of all members in the port community. Table 3.1 illustrates the number of questionnaires sent and received per each category.

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Sent</th>
<th>Received</th>
<th>% Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Authority</td>
<td>14</td>
<td>6</td>
<td>43</td>
</tr>
<tr>
<td>Terminal operator</td>
<td>11</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Shipping company / shipper</td>
<td>15</td>
<td>7</td>
<td>47</td>
</tr>
<tr>
<td>Customer</td>
<td>18</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>63</td>
<td>29</td>
<td><strong>46</strong></td>
</tr>
</tbody>
</table>

Table 3.1 Number of responses sent and received per respondent category.

3.6.2 Pilot study

The purpose of the pilot study is to refine the questionnaire so that respondents don’t encounter problems in recording and decoding the data. It detects weaknesses and lack of clarity or ambiguity of the questionnaire design. Two senior managers from Ngqura Construction Management (NCM) were used as part of the pilot study because they are involved in managing and strategically preparing the handover of the complete Port of Ngqura to NPA.
3.7 VALIDITY AND RELIABILITY

According to Leedy and Ormrod (2005:27), the validity and reliability of the measurement instruments influence the extent to which one can learn something about the phenomenon they are studying. They are an indication of the extent to which the researcher can draw a meaningful conclusion from the data collected. Both validity and reliability reflect the degree to which there may be an error in the measurements (Leedy and Ormrod, 2005:29).

3.7.1 Validity

Validity is concerned with the soundness and effectiveness of the measurement instrument. Leedy and Ormrod (2005:28) say that the validity of a measurement instrument is the extent to which the instrument measures what it is supposed to measure.

There are various types of validity and the most common are (Leedy, 1997:33):

- Face validity which relies on the subjective judgement of the researcher. The researcher has to ensure that the questions are relative to the subject being investigated.
- Criterion validity which is determined by relating performance of one measure to the performance on another measure.
- Content validity is the accuracy with which an instrument measures the factors being investigated.
- External validity which is based on whether the conclusions reached in the study can be generalised.
- Construct validity which observes the honesty of the data collected.
- Internal validity which focuses on the conclusion of the study free of bias.
The literature data collected are valid because they come from reviewed journals and books. The data received from respondents are regarded valid as well because it is from people involved in the port industry and they know more about the marine or port industry.

3.7.2 Reliability

Leedy and Ormrod (2005:29) refer to reliability as the consistency with which a measuring instrument yields a certain result when the entity being measured has not changed. The accuracy of the research data can be measured only when its consistency can also be measured.

Reliability can be established by means of different methods, namely the interrater, internal consistency, equivalent forms and test-retest reliability (Leedy and Ormrod, 2005:93). With regard to the questionnaire, Saunders et al (2000:290) describe validity and reliability of a question in terms of whether the question and answer make sense. For a question to be valid and reliable, it has to go through these stages:

- The researcher must be clear about the information and then design the question.
- Thereafter the respondent decodes the question in the way the researcher intended.
- Then the respondent answers the question.
- Lastly the researcher decodes the answer in the way the respondent intended.

The questionnaire served its purpose because respondents were able to answer questions without any difficulties and the responses received gave views of the respondents. The major aspect of this is that the responses helped with addressing the main and sub problems of the research study.
3.8 SUMMARY

The aim of this chapter was to outline the theoretical base of the research process. The questionnaire was carefully designed to meet scientific requirements and was subjected to a pilot study. The following chapter reveals the results of the survey, analysis and interpretation of data. The results are discussed in a logical and orderly manner, as laid out on the questionnaire.
CHAPTER FOUR

RESULTS OF THE EMPIRICAL STUDY

4.1 INTRODUCTION

The aim of this chapter is to analyse and interpret the results of the empirical study survey. A questionnaire attached as Annexure B was designed and sent to 63 respondents. The list of respondents was compiled from “The South African Ports Yearbook 2004” by NPA, while some of the customers list was acquired from the chamber of commerce in Port Elizabeth.

The questionnaires were emailed, faxed and some were hand-posted to various respondents. They were sent out from the 24th October 2005 with the return date not later than the 31st October 2005. The return date was later extended to be not later than the 07th November 2005 because of the most questionnaires not being returned by the respondents. As indicated earlier, a return rate of 46 percent was later achieved.

The analysis of the data follows the questionnaire structure as shown below and the outcome of every question is followed by interpretation relating to the theoretical framework outlined in chapter two.

- Section A: Demographic details
- Section B: Port of Ngqura
- Section C: Strategic planning
- Section D: Port operations
- Section E: Customer satisfaction

The next section examines the demographic details of all the respondents who participated.
4.2 SECTION A: DEMOGRAPHIC DETAILS

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port community</td>
<td></td>
</tr>
<tr>
<td>Port authority</td>
<td>21</td>
</tr>
<tr>
<td>Terminal operator</td>
<td>17</td>
</tr>
<tr>
<td>Shipping company/shipper</td>
<td>24</td>
</tr>
<tr>
<td>Customer</td>
<td>24</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
</tr>
<tr>
<td>Management level</td>
<td></td>
</tr>
<tr>
<td>Middle</td>
<td>17</td>
</tr>
<tr>
<td>Senior</td>
<td>55</td>
</tr>
<tr>
<td>Executive</td>
<td>28</td>
</tr>
<tr>
<td>Top</td>
<td>0</td>
</tr>
<tr>
<td>Years involved in the port industry</td>
<td></td>
</tr>
<tr>
<td>&lt;5 years</td>
<td>7</td>
</tr>
<tr>
<td>5 – 10 years</td>
<td>31</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>62</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Secondary school &amp; no formal education</td>
<td>17</td>
</tr>
<tr>
<td>Diploma</td>
<td>17</td>
</tr>
<tr>
<td>Degree</td>
<td>55</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>20 – 29</td>
<td>10</td>
</tr>
<tr>
<td>30 – 39</td>
<td>10</td>
</tr>
<tr>
<td>40 – 49</td>
<td>41</td>
</tr>
<tr>
<td>50 – 59</td>
<td>35</td>
</tr>
<tr>
<td>&gt;59</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 4.1 Demographic characteristics of respondents

The questionnaires were sent to members of the four groups in the port community, namely, Port Authority, Terminal operators, Shipping companies / or Shippers and Customers. From the overall questionnaires sent, 21 percent of them are from the Port Authority, 17 percent from Terminal operators, 24 percent from Shipping companies or shippers and 24 percent are customers of the ports. A further 14 percent of the respondents are from other stakeholders of the ports, the Port planning consultants and the Development Corporation.

The respondents were asked to indicate as shown on Table 4.1, their management level in the organisations, the number of years they have being involved in the port industry, their education level and lastly their age. The respondents appear to be knowledgeable about the survey subject matter, they are mature (average age is between 40 – 49 years). The majority of them are in the senior positions and have a wealth of experience with 62 percent of them
having being involved in the port industry for more than 10 years. The majority of the respondents are well educated in that over 55 percent of them have a university degree. 11 percent of respondents have obtained certificates through their formal training at their workplaces.

4.3 SECTION B: PORT OF NGQURA

Section B examines the views of the respondents with regard to the purpose of the Port of Ngqura. It examines the existence of Ngqura and whether it would have any impact on the South African port system and the economy at large. The literature review on chapter two suggest that the Port of Ngqura is strategically well positioned at the centre of the world’s main trade routes, being equidistant from American, European and the Pacific Rim regions. It will also mainly be the outlet and inlet for exports and imports of semi-finished and finished goods produced in the Coega IDZ.

1. The respondents were asked about their views regarding the strategic positioning of the Port of Ngqura with respect to the Eastern Cape region, the rest of South Africa and the Sub-Saharan Africa. Figure 4.1 below illustrates the findings.

![Figure 4.1 Results on the positioning of the Port of Ngqura](image_url)
The majority of the respondents believe that the Port of Ngqura is well positioned for the Eastern Cape region and the rest of South Africa. The respondent’s comments with respect to the position of the Port of Ngqura are summarised as follows:

- There is no justification to build a new port close to the existing one (Port of Port Elizabeth). This was the view of only two customer respondents.
- The primary purpose of the port of Ngqura is to serve the Coega IDZ and the surrounding areas.
- It is well positioned for the Eastern Cape and will help in the development and growth of the region’s economy.
- It is well positioned for the transhipment and hub purposes.
- It is well positioned to export and import goods for the Coega IDZ, but not well positioned to serve the rest of South African markets. Other ports are close enough to the Industrial areas.
- Gauteng region enjoys the most economic activity in the Sub-Saharan Africa and the lack of transport infrastructure to the hinterlands will count against the Port of Ngqura.

The main concern with the terminal operators and the customers with respect to the positioning of the Port of Ngqura is the lack of rail-road infrastructure to connect the port with the main hinterlands. The literature reveals that ports form part of the transport system and cannot survive without other modes of transport.
2. As shown in Figure 4.2 above, the majority of the respondents believe that there is congestion in other South African ports. This can be attributed to the lack of efficiency in the South African ports. The terminal throughput decreases congestion in the ports. A combination of factors like the equipments, technology, adequate transportation system, and dedicated staff and management can help a great deal with the alleviation of congestion.

![Figure 4.3 Results on the ports congestion in relation to international trade](image)

3. The majority of the respondents (45 percent) as shown on Figure 4.3 above, believe that congestion in the South African ports will increase in the future due to the expansion in international trade. This should however not be the case as all ports have plans for future upgrades which will address the issue of congestion. The port and strategic planning help with the forecasting and predicting the future with respect to the current market and economic trends in the port industries.
4. As shown on Figure 4.4 above, 52 percent of respondents believe that the port of Ngqura will neither help nor not help to alleviate the current or future congestion in the South African ports. This is supported by an earlier indication that the primary purpose of the port of Ngqura is to serve the Coega IDZ and the surrounding areas in the Eastern Cape region. This view also strengthens the argument that the Port of Ngqura was purely built based on political motivation. This is however beyond the scope of this study.

<table>
<thead>
<tr>
<th>Competitive advantages</th>
<th>Percentages</th>
<th>Mean Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customs free zone</td>
<td>49% 39% 7% 5% 0%</td>
<td>0.09</td>
<td>1</td>
</tr>
<tr>
<td>Deep waters</td>
<td>41% 42% 7% 9% 1%</td>
<td>0.08</td>
<td>2</td>
</tr>
<tr>
<td>Expansion potential</td>
<td>16% 36% 15% 21% 12%</td>
<td>0.06</td>
<td>4</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>21% 26% 21% 19% 13%</td>
<td>0.06</td>
<td>4</td>
</tr>
<tr>
<td>Technological advances</td>
<td>29% 30% 26% 9% 6%</td>
<td>0.07</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>0% 0% 0% 0% 0%</td>
<td>0.00</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4.2 Results of the Ngqura competitive advantage in order of importance

5. The mean factor of the results of every statement was determined as follows \(((1\times0.5) + (2\times0.4) + (3\times0.3) + (4\times0.2) + (5\times0.1) / 5)\). The scale factor was applied
to reach a better, clear and simple mean. All of the above listed competitive advantages are important in playing a meaningful role towards the success of the Port of Ngqura. According to the results on Table 4.2, the respondents rate the customs free zone as number one. These means more money saved by the port customers because with every import and export of the products, excise on the income will not be have to be paid. Deep waters are rated second because they provide a capacity for accommodating bigger container ships (Post Panamax) which are recently being used by many shipping companies. Third on the list are the technological advances which lead to the operational efficiency of the ports.

6. The purpose of this question was to gather different opinions from the respondents about what more should the Port of Ngqura do/provide/have different from other South African ports to be more competitive. The majority of respondents as shown on Figure 4.5 below, believe that privatisation of the port operations will enhance the competitiveness of the Port of Ngqura.

![Figure 4.5 Results on competitive advantages of the Port of Ngqura](image)

The different suggestions and opinions of the respondents with respect to the different aspects that the port should do/have/provide to be more competitive are summarised below as follows:

- The Coega IDZ needs to urgently attract the anchor tenant and then the port will justify its existence. Without the tenants in the IDZ, the port will become a white elephant with no use.
• It needs to be marketed internationally and also have relationship with other ports and the shipping companies.
• The Coega IDZ should have a greater Tax Incentive to encourage the direct foreign investment in primary and secondary industries.
• Privatise the terminal operations to guarantee agreed annual throughput and also to provide the best customer services.
• A stable economic and political environment with a well trained, competitive and productive labour force.
• A faster turnaround time of the ships which is better than the Port of Durban, will offer the best chance of competitiveness.
• A need to have a correct equipment capital investment.
• The use of the Post Panamax cranes and sufficient straddles to ensure smooth landside operations.
• It needs to have an access to an upgraded rail infrastructure leading to the terminal depots and the hinterlands.

The literature revealed a new strategic option called co-opetition, which is a combination of competition and cooperation with other ports and the shipping companies. The aim is to develop a paradigm for the port cooperation from the perspective of economic and strategic management. A good transportation network system and a use of adequate equipments will also increase efficiency in the port.

<table>
<thead>
<tr>
<th>Port management model</th>
<th>Public sector port</th>
<th>Tool port</th>
<th>Landlord port</th>
<th>Private service port</th>
</tr>
</thead>
<tbody>
<tr>
<td>38%</td>
<td>59%</td>
<td>0%</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.6 Results of port management model for the Port of Ngqura
7. As illustrated above on Figure 4.6, the majority of the respondents (59 percent) and 38 percent of the respondents respectively believe that the Private Service port and the Landlord port models will instil efficiency in the Port of Ngqura. The respondents from the terminal operators, customers and shipping companies are behind the port being private while port authority respondents favour the Landlord port model. As indicated earlier on chapter two, the Landlord port model is characterised by its public-private orientation while the Private Service port model is fully private with no direct government interference.

4.4 SECTION C: STRATEGIC PLANNING

Section C examines the extensive use of strategic planning by organisations as a tool for forward looking and preparing the organisation for the unthinkable. This section was directed to all the respondents of the port community. According to Miller and Waller (2003:95), strategic scenarios planning is a useful tool for identifying key environmental uncertainties, contingencies and their effects on the organisations performance.

1. Twenty eight of the respondents' organisations engage in periodic review of the strategic planning and accordingly adapt business and management strategies. Only one respondent cited that their organisation was small and needed not to engage in strategic planning. Strategic planning is however not meant for large organisations only, but all organisations have to review their strategic position in the market in order to be one step ahead of their competitors.

2. A majority of respondents have indicated that their organisations engage in periodic strategic review on an annual basis, whereas some of the organisations do their reviews semi-annually and others only when required.

3. Table 4.3 below shows the results of strategic planning groups and processes adopted by organisations when strategising.
Strategic planning groups and processes

<table>
<thead>
<tr>
<th>Description</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior executives do the strategic planning as and when required.</td>
<td>31</td>
</tr>
<tr>
<td>A core of senior executives and other staff.</td>
<td>34</td>
</tr>
<tr>
<td>A core of senior executives and representatives of all other staff, on invitation</td>
<td>34</td>
</tr>
<tr>
<td>An agenda of issues, with room for amendment, is prepared for consideration at each strategic planning exercise</td>
<td>31</td>
</tr>
<tr>
<td>Strategic planning is conducted during normal working hours, at the place of work, while normal work commitments enjoy attention</td>
<td>14</td>
</tr>
<tr>
<td>Strategic planning is conducted away from the work environment, during times dedicated to this exercise, and free from normal work commitments, usually at a remote location</td>
<td>62</td>
</tr>
<tr>
<td>Other (Please describe)</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4.3 Strategic planning groups and processes

The survey reveals that in most organisations, strategic planning is conducted by a core of senior executives with a representation of all other staff on invitation. It is better that the strategic team involves all other members of the organisation and this should include the labour unions. Everyone has to be part of the strategic process and this helps in the adaptation of the plans mapped out. The respondents feel that conducting the strategic planning process free of the daily normal work activities is the best. They normally conduct this strategic forum away from the work environment usually at a remote location during the times dedicated to this exercise.

<table>
<thead>
<tr>
<th>Aspects of strategic planning exercises</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWOT analysis</td>
<td>76</td>
</tr>
<tr>
<td>Analysis of business climate: regionally and nationally</td>
<td>76</td>
</tr>
<tr>
<td>Analysis of business climate: internationally</td>
<td>59</td>
</tr>
<tr>
<td>Analysis of political climate: nationally</td>
<td>48</td>
</tr>
<tr>
<td>Analysis of political climate: internationally</td>
<td>24</td>
</tr>
<tr>
<td>Review of technological developments</td>
<td>59</td>
</tr>
<tr>
<td>Review of markets</td>
<td>66</td>
</tr>
<tr>
<td>Competition analysis</td>
<td>62</td>
</tr>
<tr>
<td>Analysis of multiple scenarios</td>
<td>41</td>
</tr>
<tr>
<td>Other (Please describe)</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4.4 Aspects included in strategic planning exercises
4. As shown on Table 4.4 above, the majority of organisations have the following aspects included in their strategic planning exercises, SWOT analysis, regional and national business climate analysis, review of markets and competition analysis. A concern is hoisted by a small percentage of organisations engaging in the analysis of multiple scenarios. Feder (2002:120) mentions that multiple scenarios planning is a qualitative form of simulation well suited for the studying potential developments in a wide range of areas.

5. The three scenarios believed to be able to manage the Port of Ngqura effectively were painted as follows: Developing a complete port management structure for Ngqura from day one, managing the Port of Ngqura from the existing Port of Port Elizabeth and cutting loose when fully operational and lastly, developing a new management structure “Port of Nelson Mandela Bay” which will manage both ports as one complimentary port.

As shown on Figure 4.7 above, the majority of respondents believe developing a complete port management structure for the Port of Ngqura from day one is the best option. This would help management to concentrate fully in making Ngqura a port of choice by many shipping companies and shippers. The management should strive to have a partnership of SAPO and private companies for the efficient and effective port operations. The focus of the port management on
Ngqura will strategically help the port to be more customers focused and being operationally efficient.

4.5 SECTION D: PORT OPERATIONS

This section examines the importance of some of the port operation facilities and the international trade issues affecting the port operations. Efficiency of the port depends largely on the operations, hence more focus on it. This section was directed to all the respondents from the terminal operators and the port authority only.

1. The respondents were asked to rate the importance of the nine port evaluation factors on a scale of 1 (most important) to 5 (least important). Table 4.5 below illustrates the results of the evaluation exercise. The mean factor of the results of every statement was determined as follows \(((1\times0.5) + (2\times0.4) + (3\times0.3) + (4\times0.2) + (5\times0.1) / 5)\). The scale factor was applied to reach a better, clear and simple mean.

<table>
<thead>
<tr>
<th>Port evaluation factors</th>
<th>Most important</th>
<th>Percentages</th>
<th>Least important</th>
<th>Mean Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading and unloading facilities for large and/or odd sized cargo</td>
<td>13 31 38 13 5</td>
<td>6.68</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowance for large shipment</td>
<td>43 38 19 0 0</td>
<td>8.48</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low cargo handling charges</td>
<td>29 24 32 13 2</td>
<td>7.30</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low frequency of cargo loss and damage</td>
<td>40 23 18 19 0</td>
<td>7.68</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of equipments</td>
<td>31 25 25 19 0</td>
<td>7.36</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenient pickup and delivery times</td>
<td>36 29 19 11 5</td>
<td>7.60</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of information concerning shipments</td>
<td>18 20 27 31 4</td>
<td>6.34</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistance in claims handling</td>
<td>6 19 44 25 6</td>
<td>5.88</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility in meeting special handling needs</td>
<td>15 34 27 15 9</td>
<td>6.62</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0 0 0 0 0</td>
<td>0.00</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.5 Results of the port evaluation factors
The results presented in Table 4.5 above, indicate that the three most important port evaluation factors are allowance for large shipment, low frequency of cargo loss and damage, and convenient pick up and delivery times. Each of these factors received a rating of important from at least 60 percent of the respondents.

Allowance for large shipment is ranked as the most important among all factors and it indicates the capacity of the port. Many ports are increasingly becoming load centres, whereby international trade participants use a limited number of ports in a particular geographic area. It therefore is important for individual ports to have the adequate capacity to be able to act as hub and involved in the transhipment of the cargoes. More emphasis is placed also in pickup and delivery times of cargo with little loss and damage.

The fourth most important factor in the port evaluation is the availability of equipment. It is surprising that this factor does not top the ranking of the respondents. The cranes and straddle carriers help to reduce delays in the loading and unloading of cargo moving through the ports. This is coupled with loading and unloading facilities for large and/or odd sized cargo. The availability of port equipment forms part of the port core business and without them there is no business for the port. Their adequacy is also of prime importance for the efficiency of port operations.

The results on Table 4.5 also suggest that the port operators rate the availability of shipment information and assistance in claims handling as the least important port evaluation factors. The lack of emphasis on the shipment information may lead to a breach of security. Port operators have to know what is being transported for security reasons and more emphasis should also be put on the hazardous cargoes.

2. The respondents were asked to evaluate seventeen contemporary issues associated with various aspects of international trade and port operations, using
a scale ranging from 1 (strongly disagree) to 5 (strongly agree). These issues can be grouped into four categories, namely, economic, operational, personnel and, safety and security which are discussed hereunder.

<table>
<thead>
<tr>
<th>International trade and port operations issues</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
</tr>
<tr>
<td>It would help if the value of SA currency (rands) were to increase</td>
<td>24</td>
</tr>
<tr>
<td>Globalisation is helping the SA economy to grow</td>
<td>0</td>
</tr>
<tr>
<td>It is unacceptable to participate in informal / unannounced embargoes against specific countries</td>
<td>0</td>
</tr>
<tr>
<td>Container sizes should be standard worldwide</td>
<td>6</td>
</tr>
<tr>
<td>International cargo losses are higher at a port than while in transit</td>
<td>0</td>
</tr>
<tr>
<td>Containers are more likely to be damaged while in transit than while at the port</td>
<td>6</td>
</tr>
<tr>
<td>Carrier loading at the ports takes too much time</td>
<td>0</td>
</tr>
<tr>
<td>Carrier delivery at the ports takes too much time</td>
<td>0</td>
</tr>
<tr>
<td>The transport system supporting the ports are more than adequate</td>
<td>18</td>
</tr>
<tr>
<td>Complexity of documentation is the major problem in port operations</td>
<td>0</td>
</tr>
<tr>
<td>The use of technology in the ports is very important</td>
<td>0</td>
</tr>
<tr>
<td>Labour regulations are a minor problem in port operations</td>
<td>12</td>
</tr>
<tr>
<td>Cargo handlers should at least be fluent in the English language to avoid complications</td>
<td>0</td>
</tr>
<tr>
<td>Personal inducements / corruption are a minor problem in port operations</td>
<td>0</td>
</tr>
<tr>
<td>Hazardous cargoes should not be moved in international trade</td>
<td>53</td>
</tr>
<tr>
<td>Packaging standards of hazardous cargo moving through ports should be more strictly enforced</td>
<td>6</td>
</tr>
<tr>
<td>Port operations are secure from terrorist violence</td>
<td>29</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4.6 Results of the evaluation of international trade and port operations issues

4.5.1 Economic issues

The first question in this category asked respondents whether they are in favour of an increase in the value of the SA currency (rands). As shown on Table 4.6, 70 percent of the respondents disagree with an increase in the value of the currency. A weaker Rand make South African exports more competitive in the

67
foreign markets and also increase the export of cargo. This is in turn good for the creation of jobs and better employment. However, the weaker Rand also make imports more expensive, which cause a reduction in countries imported goods. A weak currency is not bad if the country has a large exportation of cargoes. A country’s economic polices should strike a balance in the value of the currency for the better of its people.

The second issue is on globalisation and it was agreed with by 65 percent of the respondents that it helps to grow the economy. Globalisation opens the market for the country to trade with as many countries as possible. The results also reveal that 53 percent of the respondents feel that it is unacceptable for the individual port organisation to participate in either informal or unannounced embargoes. When doing the business, ports should always follow the country’s national government economic policies. The government may have a political motive not to engage in trading with a specific country. It is however one of the primary roles of the government to broker an international trade partnership with various countries.

4.5.2 Operational issues

Containerisation has sparked growth in international trade and it is important from an efficiency perspective to have standardised container facilities. It helps with rapid movement of cargo through the ports. As a result, 88 percent of the respondents are in favour of the standard containers worldwide. Along with the increase of container traffic come the increase in both loss and damage of cargo moved in the containers. 71 percent of the respondents feel that cargo loss or damage occurs mainly at a port than in transit. These findings suggest that port management should re-evaluate container handling methods as well as security in the port areas.
Two other operational issues investigated in this study involve carrier loading and carrier delivery times at the ports. 41 percent and 59 percent of respondents respectively feel that the times can be reduced by employing adequate equipment and technology. It is critical to have a high throughput of ships at the port and this requires that the time spent on each ship is as small as possible. The results on Table 4.6 further indicate that 64 percent of respondents believe there is no adequate transport system supporting the ports. There needs to be an adequate rail-road transport network to and from the port. The transportation logistics form part of the port efficiency model and help improve the productivity which essentially benefit the customers.

The organisations which are engaged in the international trade often complain about the documentation requirements associated with the exporting and importing of cargo. 29 percent of respondents disagree that documentation is the major problem in port operations, while 53 percent neither agree nor disagree. 82 percent of respondents feel that the use of technology in the ports is very vital. These technologies can take care of the complexity of documentation and this will result to port efficiency and improved customer service.

4.5.3 Personnel issues

As shown in Table 4.6, 29 percent of respondents feel that labour regulations are a minor problem in the port operations. On the other hand, 59 percent indicate that labour regulations are a major problem in port operations. The finding emphasises the importance of port management in ensuring adequate working environment for labours. A country like South Africa which has a high trade union activity should develop competitive labour practices.

The second personnel issue deals with the language fluency of port employees. In a country like South Africa where there are nine official languages, it is imperative that the international language (English) is being used in all of the
official communications. Table 4.6 indicate that 88 percent of respondents agree to the use of English language to avoid complications. The third issue is the personnel corruption in port operations. The results from Table 4.6 also indicate that 41 percent of respondents believe there are minor problems with corruption in the ports. A further 47 percent neither agree nor disagree that personnel corruption does exist in the port operations. The port management should create a culture of honesty and customer care, where all port employees will uphold the values and objectives of the port.

4.5.4 Safety and Security Issues

The two safety issues are concerned with the movement of hazardous cargoes in international trade and packaging requirements thereof. 82 percent of the respondents feel that transportation of hazardous cargo is not a problem. However, 88 percent indicate that stringent packing of the hazardous cargo should be enforced. Hazardous cargo has negative effect on the marine life and the environment. A serious concern is raised by 53 percent of respondents believing that ports are not secure from terrorist violence. Port management need to take drastic steps in addressing security because the ports are the gateway to international trade.

3. The respondents were also asked what they believe would improve efficiency in the SA ports and the following are a summary of their responses.

- Privatisation of terminal operations
- Deregulation of port operations
- Implementation of Port Authority Act
- Deep water ports for allowing big ships
- Upgraded equipment and ongoing training of staff
- Competition of the ports
- Upgrade of the support transport system for ease of cargo movement both inward and outward bound.
• There has to be competent and accountable personnel in the key positions

The majority of the respondents have the same point of view in that, port operations should be privatised to realise efficiency.

![Figure 4.8 Provision of port services](image)

**Figure 4.8 Provision of port services**

4. The above Figure 4.8 shows that 75 percent of the respondents believe that the provision of port services should remain in the hands of the Port Authority. These should however be only as far as being the Landlord and provide the marine services (water based). The results in D.3 and D.4 further strengthen the choice of Private Service port model preferred by most respondents in B.7.

![Figure 4.9 Privatisation of port terminals](image)

**Figure 4.9 Privatisation of port terminals**
5. The results on Figure 4.9 above suggest that respondents believe the port terminals should be privatised in order to achieve more efficiency in the port operations. The respondents indicated that it is long overdue to have private terminal operators in the ports and it will also prevent unfair competition. They believe it is an established international fact that private terminals are more efficient than the public owned terminals.

4.6 SECTION E: CUSTOMER SATISFACTION

The ultimate purpose and fundamental reason for the organisation’s existence is to serve its customers. The full involvement of customers in the organisations product or service processes is vital as it gives an organisation a first hand experience on what the needs and the requirements of the customers are. This section examines what the customer requirements and needs are. It was directed to the cargo owners, shipping companies and the shipping agents.

![Figure 4.10 Ratings of port quality service and efficiency](image)

1. As illustrated on Figure 4.10, it can be deduced that ports knows what business they are in to. They have the ability to get things done with a big room for improvement. The customers do receive assistance when making special

Figure 4.10 Ratings of port quality service and efficiency

![Chart showing ratings of port service and efficiency](chart)
requests and port management understand the business needs of their various customers. The only issue cited as being poor by customers is the productivity. This issue can be addressed by an adequate use of correct equipments and well trained labour force.

2. The customers were further asked to rate the adequacy of the technology and the equipment used in the ports with respect to their requirements and needs.

From the above Figure 4.11, it is clear that the majority of customers believe that there is no adequacy in the technology and equipments employed in the South African ports. They suggest the following issues should be improved or adopted.

- Capital investment in the correct equipments
- Replacement of old equipments
- Effective equipment maintenance programs

3. Below are a summary of customer requirements and needs in terms of the services offered by the ports.

1. prompt attention to the vessels arriving
2. prompt delivery of containers to customers depots
3. fast and efficient services at a reasonable cost
4. adequate and technologically advanced handling equipment
5. friendly customer service
6. ability to access the location of ship and cargo information  
7. good coordinated transportation system to and from customer depots  
8. adequate rail transportation and rolling stock  
9. adequate storage facilities with proper and adequate security  

4. Hereunder are the suggestions which the customers believe would help the ports improve their quality and the value of service they provide.  
   • Port operations have to be privatised  
   • Ensure that only experienced and capable personnel occupy key positions  
   • There should be cooperation between the Port Authority and the port operations division  
   • There should be accountability by port staff and management  
   • Management should understand customer requirements and be more customer focused “no can’t do attitude”  
   • Adequate warehousing facilities and tracking devices on cargo to delivery destinations  
   • The use of new and well maintained equipments by well trained personnel  
   • Performance related rates with penalty clauses cutting both ways, not one way as it is at present  

5. Lastly, the respondents were also asked to evaluate the following customer related statements and Table 4.7 presents the results.  

<table>
<thead>
<tr>
<th>Customer evaluation statements</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice of port is made quickly using my knowledge and experience.</td>
<td>20</td>
</tr>
<tr>
<td>I am willing to pay higher for better service and quicker delivery.</td>
<td>32</td>
</tr>
<tr>
<td>It is important for ports to offer online services to customers.</td>
<td>21</td>
</tr>
<tr>
<td>It is important for ports to be well connected with other transportation modes.</td>
<td>15</td>
</tr>
<tr>
<td>Preserving my company’s reputation and satisfying customers are important.</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 4.7 Customer evaluation statements  

The majority of the respondents indicated that they are willing to pay higher for better service and quicker delivery. This confirms the importance of port
efficiency to customers. They also feel that it is important for ports to be well connected with other transportation modes. Murphy et al. (1995:26) indicate that the ports need to offer a clear logistics advantage in terms of proximity to cargo hinterland, rail-road connectivity and other facilities for handling cargo.

4.7 SUMMARY

A survey was conducted among 63 respondents involved in the port industry for the purpose of gathering more information on the strategic management of the ports in respect to the Port of Ngqura. Aggregate results indicate that the Port of Ngqura is strategically positioned well to serve the Eastern Cape region and the rest of South Africa. However, a good transportation system has to be in place. The majority of respondents are in favour of the Private Service port model for managing the Port of Ngqura.

Nearly all of the organisations engage in the strategic planning for identifying key environmental uncertainties. About 59 percent of the respondents favoured the development of a complete port management structure for the Port of Ngqura from day one of operation. The survey also discovered that the port capacity for allowing large shipment and low frequency of cargo loss and damage ranked high among the respondents.

With respect to the contemporary issues affecting the international trade, 65 percent of the respondents indicated that globalisation is helping the South African economy to grow. The majority of respondents also believe that the loading and unloading time of ships can be reduced by employing adequate equipment and technology. Labour regulations are also a problem that the management have to address.

The fact that the ports serve important economic and defence roles makes it imperative for the port management to increase attention to port security. The
port evaluation factors and trade issues investigated in this study have important implications for the efficiency and effectiveness of the port operations. The positive actions by port management in addressing all of these topics should enhance the contribution of trade towards increased economic welfare by reducing distribution costs and improving customer service.

The following chapter examines the ideal port management model for the strategic management of the Port of Ngqura.
CHAPTER FIVE

STRATEGIC MANAGEMENT MODEL

5.1 INTRODUCTION

The aim of this chapter is to develop an ideal strategic management model for the Port of Ngqura. A model is an explanation of how phenomena occur and how data or events are related. This model is based on the data from the literature study and the empirical study survey. The nucleus of this model is the total strategic focus by the port management in achieving a total quality and efficient services for the delight of port customers.

The main focus is on the value added services provided by the terminal operators, which are based on adequate technology, equipments, integrated transport logistics, security and trends in socio-economics. The model also focuses on the total customer satisfaction which is based on informed decisions and also bearing in mind the unreasonable customer expectations.

The next section deals with the research findings of the port management model to be adopted.

5.2 RESEARCH FINDINGS

The empirical survey revealed that 59 percent of the respondents which are mainly terminal operators and customers prefer the Port of Ngqura to be a Private Service port, while 38 percent of the respondents comprising mainly of port authority members prefer the Landlord port. The reason for the preference of the private service port by the majority of the respondents is the notion that private companies are more efficient that the government enterprises.
Since the Port of Ngqura is developed by the government (Port Authority), the only form of participation by the private sector is by entering into a lease or concession contract with the Port Authority. WBPRT (2002:52) refers to a lease contract as where an operator enters into a long term lease on the port land and usually is responsible for the superstructure and equipments. A concession contract is where the operator covers investment costs and assumes all commercial risks. Such contracts are often combined with specific financing schemes such as Build, Operate and Transfer (BOT).

However, the Landlord port has a risk of over capacity as more than one private operator may pressure for expansion. There may also be a duplication of marketing effort as both terminal operators and the port authority visit potential customers. A greater co-ordination of marketing and planning is therefore required with this model.

5.3 MANAGEMENT MODEL

According to Hamlet (2005:86), the term model expresses interconnected relationships between the main components or elements of a system. A model may not necessarily be diagrammatically or graphically represented as it is normally done, but it may however be useful because human beings have a very sound photographic memory. Management models can be used as a training tool for future managers and also act as a decision making tool.

Hamlet (2005:86) further mentions that any proposed model is not an attempt to reduce highly complex matters into a simple schematic. It represents the way in which researchers have organised their thoughts on complex processes. Models should be interpreted and conceptualised in terms of the applicable industry and organisational circumstances.
Developing a model is a process of continuous refinement and therefore, imperfect models enable management to point out the gaps in their knowledge and also serve as a stepping stone in the construction of improved models. Management models also help in exploring the likely outcome of alternative decisions or strategies.

### 5.4 TOTAL QUALITY MANAGEMENT

The model for the Port of Ngqura will be based on the total quality service to its customers. Quality management is a dynamic subject continually evolving in response to a rapidly changing world. Stevenson (2002:39) refers to quality as the ability of a product or service to consistently meet or exceed customer expectations. It is a key deliverable in achieving customer satisfaction in any service delivery. It is an all-rounder type of management and includes principles such as customer orientation, leadership from management, strategic planning, continuous improvement and cooperation among all stakeholders, statistical quality control methods, and training and education of all employees.

According to Stevenson (2002:40) the quality management system serves to provide a reference against which current practice can be audited and also provide an aid to ensure uniformity of understanding and continuity of performance. The management system has the following aspects which contribute to the delight of the customer.

- **Quality Planning**: identify which quality standards are relevant to the service and determine how to satisfy them.
- **Quality Assurance**: evaluate overall service performance on a regular basis to provide confidence that the service still satisfies the relevant quality standards.
- **Quality Control**: monitor specific service results to determine if they eliminate causes of unsatisfactory performance.
The strategic management model of the Port of Ngqura will deal with the quality management of the following components, customer orientation, equipment and technology, facilities and security, integrated transport logistics and the global socio-economic trends. Overall it spearheads the port operations and the port authority at being efficient.

5.4.1 Customer orientation

The Port of Ngqura requires people with skills to be able to serve and produce good quality for their customers. Education and training of people is therefore very crucial in meeting the expectations of customers. The Maverick and Japanese philosophies indicate that the human capital is vital for the growth and sustainability of the organisations. The port management must therefore create a working environment that will encourage the production of top quality services.

5.4.2 Equipment and technology

In today’s world, efficiency is in the nucleus of most businesses and the ports are no exception. The adequate equipments and technology increase the efficiency of the ports and these transform into more business for the port. A sound maintenance strategy of this high level investment on superstructures has to be in place to deal with any future short-comings. The equipments and technology change with time and therefore become obsolete. An effective strategic plan by the port management is therefore ideal for dealing with all future uncertainties affecting the operation of the ports.

5.4.3 Facilities and security

The port authority as facility manager must have the ability to manage and add to the store of assets and facilities that together make up the port. All of these do
change as technology changes, but must be actively managed. An adequate planning and resource of facility maintenance is also vital. The terminal operators will have to attend to the security issue within their terminals and the port authority would attend to the overall port security management. The ports are international trade facilitators and therefore a safe environment for all role players in trade is sought.

5.4.4 Integrated transport logistics

Logistics is a part of the supply chain process that plans, implements and controls the efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption in order to meet the customer requirements (Stevenson, 2002:211). Among the customer requirements are an optimal, efficient and flexible transportation system which is necessary to develop and grow the South African economy.

An efficient logistics system has the following benefits:

- Increased export
- Reduced dependency on imports
- Increased foreign direct investment
- Low logistic costs
- Reduced inventory levels
- Increased global competitiveness
- Reduced unit cost
- Safety and reliability

As indicated earlier, the Port Authorities role has changed and the management needs to be proactive by involving all the ports stakeholders in developing an integrated logistics system as shown on figure 5.1 hereunder.
5.4.5 Global socio-economic trends

The recent trend in the globalisation phenomena is the unification of nations and countries in the economic front. The international trading among countries is uplifting the social life standard of many people around the world. Formal embargoes between countries also act as a platform whereby help is sought in terms of social issues affecting the people. The AIDS pandemic, poverty and foreign direct investment for job creation are some of the issues addressed in these platforms. Therefore, a strategic port management is vital as ports play a massive role in bringing many countries together and thereby promoting world peace.

Figure 5.1 Integrated transport logistics system
Source: Molotsane (2004:31)
5.5 STRATEGIC MODEL FOR THE PORT OF NGQURA

Figure 5.2 below proposes a strategic management model which may serve to effectively and efficiently manage the Port of Ngqura.

![Strategic management model for the Port of Ngqura](image)
This model is based on the Port of Ngqura operating as a Landlord port. The focus is on the customer satisfaction and continued service improvement. Both the terminal operators and the management of Port of Ngqura would have a shared strategic plan informed by the customer needs and requirements, and internal and external business environment. An operational plan is then formulated based on the strategic plan.

The terminal operators offer their value added services which are based on the adequate technology, equipment, integrated transport logistics, security and socio-economic trends. The financing of all these services will be provided by the terminal operators who have a concession contract with the Port Authority (Port of Ngqura). The employment of the type of equipment and technology, transport logistics and security to be used is based on the operational plan which is drafted from the overall strategic management plan.

The operational plan promotes efficiency within the terminal operations which in turn satisfies the customers. An annual measurement and analysis of the customer feedback on the service provided by the terminal operators and the port authority will be undertaken. The service measurement is based on the yardsticks defined in the operational plan. From the analysis of the needs and the requirements of the customer follows a continual improvement. The information gathered from the analysis is then taken for further management review.

The model promotes constant communication with the customers and also highlights the roles allocated to the port authority. The port authority in this regard facilitate trade, undertake and contribute to intermodal efficiency, invest capital in critical common user assets and also advocate and articulate the ports need with the government authorities.

None of these roles should be played in isolation because they all require a close collaboration with the port private operators and the logistics community. These
will however require some level of careful co-operation with the government. All of the above roles must be played effectively and cannot be left to the individual port groups to handle. As indicated earlier, Port Authorities have to be pro-active in facilitating and co-ordinating issues affecting the ports.

5.6 SUMMARY

The aim of this chapter was to develop a strategic management model for the Port of Ngqura. Models impel management to extract the bare essentials from a collection of loose statements about how the system works.

The Ngqura model centres on the customer satisfaction and the main elements in the construction of this model are equipments, technology, transport logistics, security and socio-economic issues. All of these elements ensure an effective and efficient service from the terminal operators and the port authority.

The following chapter summarises the main findings of the research study and recommend ideas for implementation.
CHAPTER SIX

SUMMARY, FINDINGS AND RECOMMENDATIONS

6.1 INTRODUCTION

In chapter four, the research results were analysed and interpreted in relation to the literature examined in chapter two. Chapter five addressed and dealt with the preferred efficient port management model for the Port of Ngqura. This final chapter summarises the main findings in relation to the main problem and sub-problems as articulated in chapter one.

It will also highlight the problems and limitations encountered during the research period. Lastly the recommendations and the opportunities for further research will be presented.

6.2 SUMMARY

Phase one of the construction of the Port of Ngqura is due for completion at the end of 2005 and it therefore is important for the NPA to strategically consider the management of the port post the construction phase. This study examined many factors which may lead to the ideal, efficient and effective management model for the Port of Ngqura.

The literature review of the overall port management and the port operations was undertaken. The key aspect of the Port of Ngqura is to use its competitive advantages to compete well in the port environment and also to satisfy its customer requirements and needs. The review of the strategic planning with respect to the port anticipating the future in terms of the internal and the external environment was also tackled. The main findings of the literature are discussed in the following section hereunder.
The research methodology of this study was also examined and both the quantitative and qualitative research was applied to source the data required to resolve the main and the sub-problems. A questionnaire was designed and sent out to the respondents involved in the port industry. 46 percent response rate was achieved from all the questionnaires sent. The results from the respondent’s response was then analysed and interpreted in line with the literature review. The main findings of the empirical study are also discussed in the following section hereunder.

The main elements established from the literature and the empirical study were utilised to develop an ideal model which may strategically help in efficiently and effectively managing the Port of Ngqura.

### 6.3 MAIN FINDINGS

The main findings with regard to the development of an ideal strategic management model for the Port of Ngqura can be divided into five sections as detailed below. The literature review and the research survey assisted in highlighting these findings.

#### 6.3.1 Strategic position of Ngqura

- The port is well positioned in the Eastern Cape to serve the region and to some extent fairly well positioned to serve the rest of South Africa as a trans-shipment hub.
- Ngqura has a big potential for growth depending to a large extent on the expansion of the Coega IDZ.
- The respondents believe that there is congestion in the South African ports and this is due to the lack of efficiency in the ports.
• The respondents believe that Ngqura will not necessarily alleviate the congestion in other ports because all other South African ports have their own strategic plan to deal with the situation.

• Ngqura has competitive advantage over other South African ports with respect to expansion potential, deep waters, customs free industrial zone and the expected state of the art equipments and technology.

6.3.2 Strategic planning

• The majority of organisations in the port industry do engage in strategic planning.

• The respondents indicated that multiple scenarios planning are not yet popular among organisations when strategising. This is however unfortunate because multiple scenarios planning have a series of counter actions on each scenario painted.

• The majority of respondents indicated that they prefer the Port of Ngqura to have its own port management structure from the first day of operation. This will help the management in focusing on the competitiveness of the port.

6.3.3 Port management

• The primary function of the ports is to provide for efficient, low cost, intermodal and intramodal transfer, inspection, storage and control of cargo.

• The majority of respondents especially the cargo owners and the terminal operators indicated that the Private Service port model would efficiently help manage the Port of Ngqura.

• The port management personnel should have enough port experience, be capable and accountable to be considered for top positions.
• The ever changing market environment has changed the role of Port Authorities to being trade facilitators. They facilitate trade by engaging all the stakeholders in the port planning.

• A new strategic option within the port industry called co-opetition was proposed by Song (2003:30). It combines competition and co-operation with the aim of developing a paradigm for the port co-operation from the perspective of economics and strategic management.

• The port of choice by carriers and shippers is mainly determined by the efficiency and the location in respect with the port of origin.

6.3.4 Port operations

• The majority of respondents indicated quite strongly that the port terminals should be privatised in order to realise efficiency.

• The adequate equipments are an important element to port efficiency. The equipments in South African ports are old and require replacement. An effective maintenance plan is required to keep the equipments efficient and to result in good ship turnaround time.

• The use of technology is vital in the port operations. It attend to the complexity of documentation and the resultant is port efficiency and improved customer service.

• Facilities offered in the ports are important because they increase competitive advantage of a port. The value added services boost the economic performance of the region and also help attract existing and potential customers.

• A safe port environment is essential for safe keeping and handling of cargo. The ports are gateway to international trade and need to be secure from terrorist violence.

• South Africa lacks an integrated transport logistics that will offer safe transport and faster delivery times to different customers in many places.
• The majority of the respondents rate the allowance for large shipment as the most important port evaluation factor. Port capacity is increasingly becoming important in terms of cargo handling and deep waters for allowing big Post Panamax ships.
• The management of the ports is vital for South Africa as a country because the ports are facilitators of international trade. The South African economy depends largely on the sea-borne trade with other countries.

6.3.5 Human resources

• The ports require management personnel with commitment, experience and accountability to their customers.
• The communication loop between the customers and port management is vital in communicating the needs and requirements of the customers.
• The education and training of port personnel is vital for their proficiency and adding value in the efficiency of ports.
• The use of common international language (English) in South African ports is cited by most respondents as being important to curb the normal miscommunication between the port community members.

6.4 MAIN PROBLEM

Chapter one identified the following main problem “What strategic management scenarios must be formulated by NPA in order to ensure efficient management of the Port of Ngqura and meet their customer needs?”

The literature review and the research survey covered a number of issues pertaining to the port industry and hereunder are the resolution of the three identified sub-problems in order to deal with and solve the main problem.
Sub-problem one
What are the specific requirements and needs of port customers?

Section E of the questionnaire addressed the question adequately and it must be borne in mind that even though the customers are the king, they may at times have unreasonable demands. As discussed in chapter four, hereunder are the summarised port customer’s requirements and the needs.

- prompt attention to the vessels arriving
- prompt delivery of containers to customers depots
- fast and efficient services at a reasonable cost
- adequate and technologically advanced handling equipment
- friendly customer service
- ability to access the location of ship and cargo information
- good coordinated transportation system to and from customer depots
- adequate rail transportation and rolling stock
- adequate storage facilities with proper and adequate security

Sub-problem two
What strategic scenarios can be identified for the port?

The literature revealed that it is imperative for organisations to be engaged in the multiple scenarios planning because it addresses the future uncertainties and also provide a series of scenarios to deal with contingencies that may deem unthinkable. Among the scenarios for managing the Port of Ngqura as identified in chapter four, the development of a complete new port management structure from day one of operation was preferred by the majority of the respondents. This would help the management to be more focused on the issues affecting the port.

Sub-problem three
What management model can be formulated to help ensure efficient management of the Port of Ngqura?
The literature review in chapter two and the analysis of the empirical survey helped to identify the elements employed in developing the ideal and efficient strategic management model for the Port of Ngqura. As indicated in chapter five, the Ngqura model revolves around the total quality management of the value added services by the port operators and also focuses on customer satisfaction and continuous improvement.

6.5 PROBLEMS AND LIMITATIONS

There were no major problems experienced in the research study but there was however limited data readily available on the management of ports. The research survey was successful because a 46 percent return rate was achieved. Even though a number of respondents did not respond, despite numerous reminders, a fair representation of all group categories was achieved. A good balance of opinions was achieved, thereby avoiding further bias created by non-response of the other 54 percent of the respondents. The analysis of data proceeded smoothly with both quantitative and qualitative data giving depth to the findings.

6.6 RECOMMENDATIONS

Following the main findings highlighted from the literature review and the empirical survey are the recommendations which can be implemented from the government level down to the port management level.

1. The current situation in the South African port management system does not promote competition. Therefore, the ports need to be freed from the constraints of regulation. De-regulation will enable the ports to function successfully in a global economy which has increasing multinational trade and demanding international markets.
2. The South African port system has to reform into a Landlord port type system. This system will provide a focus for both the port authority and the terminal operators, and in turn efficiency will increase in the ports. The terminal infrastructure and the cargo handling equipments can be purchased and/or constructed and operated and/or maintained by the private terminal operators in terms of a concession or lease contract with the National Ports Authority of South Africa.

3. In order to have more focus on the port efficiency, the Port of Ngqura needs to have its own management structure from the first day of operation. The management personnel must be appointed based on their experience and also have to be accountable to their customers. The South African norm of personnel appointed based on the political connection will not do the port industry and the country any good.

4. The proposed Ngqura strategic management model in chapter five should be subjected to change. The change in time, environment and technology calls for a review of this model annually in order to stay competitive. The review of the model should be aligned with the port strategic plan.

5. A customer focus is needed and therefore an improvement of the communication line with the customers is very essential. In order to offer a better and improved service, the port management must be aware of customer requirements and their needs. These assist in purchasing the correct equipments and technology for the right purpose.

6. The Port of Ngqura has to strategically co-operate with other international ports to stay competitive. This will keep it aware of the developments in different countries and also share the intelligence to effectively deal with the security issues. The recent trend of terrorist violence is a major problem facing ports around the world. The ports are the key to
international trade and South Africa has to upgrade its port security to be safe for traders.

7. The South African rail network has to be improved to be able to link up Port Elizabeth (Eastern Cape) with the rest of other hinterlands such as Gauteng. A balance approach in improving the transportation network is required to deliver cargo efficiently and more cheaply. An integrated transport logistics as proposed in chapter five is recommended.

6.7 OPPORTUNITIES FOR FURTHER RESEARCH

The study has revealed that there is lack of efficiency in the South African port system. Therefore, an ideal strategic management model was developed for the efficient and effective management of the Port of Ngqura. The model is about a continuous and improved customer service which will provide a better competitive advantage over other ports.

The required elements for formulation of the model were identified and they are subjected to a revision due to a change of environment. As indicated earlier that there will be an annual measurement, analysis and improvement of the model, a criteria for measuring and evaluating all the identified elements of the model is therefore necessitated. The criteria will ensure a well informed measurement and evaluation of the elements and also ensure that the correct information for strategic planning is gathered from the stakeholders.
6.8 CONCLUSION

The aim of this chapter was to re-visit the sub-problems identified in chapter one and to ascertain that all have been resolved. The findings of the study aided in resolving these three sub-problems. The possible opportunity for further research was identified and while there are many, the criteria for measuring and evaluating all elements of the model were highlighted.
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ANNEXURE A

Nelson Mandela Metropolitan University
Business School
MBA Student

A model for the efficient strategic management of the Port of Ngqura.

Dear Sir / Madam

Please find attached a questionnaire relating to the above topic. Your assistance in completing the questionnaire by **07 November 2005** would be highly appreciated.

As part of my research study, I am conducting a survey to obtain more data on the topic. As a result of your organisation being part of the port community, your views and opinions concerning management of the ports will be of great importance. This will take not more than 10 minutes of your valuable time.

Any queries may be addressed to me as indicated below.

Thanking you in advance.

Johnny Mokheseng
Fax: 041 507 8232
Tel: 041 507 8231
Cell: 083 708 9191
Email: johnnym2@telkomsa.net
The following questionnaire is designed for academic purpose and your early response would be highly appreciated.

**SECTION A: Demographic Details**

To be completed by all respondents please.

Please supply the following information:

1. Your organisation is a member of which port community?

   - Port Authority
   - Terminal Operator
   - Shipping company or shipper
   - Customer
   - Other

2. What is your level of management in the organisation?

   - Middle
   - Senior
   - Executive
   - Top

3. How many years have you been involved in the port industry?

   - < 5 years
   - 5 – 10 years
   - > 10 years

4. What is your level of education?

   - Secondary school & no formal after-school qualifications
   - Diploma
   - Degree
   - Other (Please state)

5. Age

   - 20 -29
   - 30 - 39
   - 40 - 49
   - 50 - 59
   - > 59
SECTION B: Port of Ngqura

To be completed by all respondents please.

1. What is your view about the strategic positioning of the Port of Ngqura in respect of?

<table>
<thead>
<tr>
<th>Position</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Eastern Cape region</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The rest of South Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please elaborate on your answer:

________________________________________________________________
________________________________________________________________
________________________________________________________________

2. Do you believe that there currently is congestion in other SA ports?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

3. To what extent do you expect that congestion in SA ports will increase in the foreseeable future due to expansion in international business?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestion will increase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>considerably</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. To what extent do you believe that the port of Ngqura will help to alleviate current or future congestion in other SA ports?

<table>
<thead>
<tr>
<th></th>
<th>1 = Completely</th>
<th>5 = Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 = Completely</td>
<td>5 = Not at all</td>
</tr>
</tbody>
</table>
5. Using a scale of 1 - 5, please rate the following competitive advantages in order of the importance which you believe they will play in the success of the Port of Ngqura? (1 = Most important; 5 = Least important)

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customs free zone</td>
<td></td>
</tr>
<tr>
<td>Deep waters</td>
<td></td>
</tr>
<tr>
<td>Expansion potential</td>
<td></td>
</tr>
<tr>
<td>Operational efficiency</td>
<td></td>
</tr>
<tr>
<td>Technological advances</td>
<td></td>
</tr>
<tr>
<td>Other (Please state)</td>
<td></td>
</tr>
</tbody>
</table>

6. In your opinion, what more should the Port of Ngqura do / provide / have different to be more competitive?

________________________________________________________________
________________________________________________________________
________________________________________________________________

7. In your opinion, which port management model do you believe will instil efficiency in the Port of Ngqura?

<table>
<thead>
<tr>
<th>Model</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public sector port</td>
<td></td>
</tr>
<tr>
<td>Tool port</td>
<td></td>
</tr>
<tr>
<td>Landlord port</td>
<td></td>
</tr>
<tr>
<td>Private service port</td>
<td></td>
</tr>
<tr>
<td>Other (Please state)</td>
<td></td>
</tr>
</tbody>
</table>
**SECTION C: Strategic planning**

To be completed by all respondents please.

1. Does your organisation engage in periodic reviews of its strategic planning and accordingly adapt business strategy and management strategies?
   
   Yes [ ] No [ ]

2. If “Yes”, at which intervals? Please elaborate.
   
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

3. Which of the following provides the closest description(s) of your strategic planning group and process? (More than one option may be selected).

   - Senior executives do the strategic planning as and when required.
   - A core of senior executives and other staff.
   - A core of senior executives and representatives of all other staff, on invitation.
   - An agenda of issues, with room for amendment, is prepared for consideration at each strategic planning exercise.
   - Strategic planning is conducted during normal working hours, at the place of work, while normal work commitments enjoy attention.
   - Strategic planning is conducted away from the work environment, during times dedicated to this exercise, and free from normal work commitments, usually at a remote location.
   - Other (Please describe)

4. Which of the following aspects are included in your strategic planning exercises?

   - SWOT analysis
   - Analysis of business climate: regionally and nationally
   - Analysis of business climate: internationally
   - Analysis of political climate: nationally
   - Analysis of political climate: internationally
   - Review of technological developments
5. Which of the following scenarios you believe will effectively work for the Port of Ngqura?

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a complete port management structure for Ngqura from day one.</td>
<td></td>
</tr>
<tr>
<td>Manage Ngqura from Port of PE and cut it loose when fully operational.</td>
<td></td>
</tr>
<tr>
<td>Develop a new management structure “Port of Mandela Bay” which manages both ports as one complementary port.</td>
<td></td>
</tr>
<tr>
<td>Other (please state):</td>
<td></td>
</tr>
</tbody>
</table>

SECTION D: Port Operations

To be completed by port authorities and terminal operators only.

1. Using a scale of 1 - 5, please rate the importance of each of the following port evaluation factors. (1 = Most important, 5 = Least important)

<table>
<thead>
<tr>
<th>Evaluation Factor</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading and unloading facilities for large and/or odd sized cargo</td>
<td></td>
</tr>
<tr>
<td>Allowance for large shipment</td>
<td></td>
</tr>
<tr>
<td>Low cargo handling charges</td>
<td></td>
</tr>
<tr>
<td>Low frequency of cargo loss and damage</td>
<td></td>
</tr>
<tr>
<td>Availability of equipments</td>
<td></td>
</tr>
<tr>
<td>Convenient pickup and delivery times</td>
<td></td>
</tr>
<tr>
<td>Availability of information concerning shipments</td>
<td></td>
</tr>
<tr>
<td>Assistance in claims handling</td>
<td></td>
</tr>
</tbody>
</table>
**Flexibility in meeting special handling needs**

<table>
<thead>
<tr>
<th>Other (Please specify)</th>
</tr>
</thead>
</table>

2. Using a scale ranging from 1 (strongly disagree) to 5 (strongly agree), please rate the following international trade and port operations-associated issues.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>It would help if the value of SA currency (rands) were to increase</td>
<td></td>
</tr>
<tr>
<td>Globalisation is helping the SA economy to grow</td>
<td></td>
</tr>
<tr>
<td>It is unacceptable to participate in informal / unannounced embargoes against specific countries</td>
<td></td>
</tr>
<tr>
<td>Container sizes should be standard worldwide</td>
<td></td>
</tr>
<tr>
<td>International cargo losses are higher at a port than while in transit</td>
<td></td>
</tr>
<tr>
<td>Containers are more likely to be damaged while in transit than while at the port</td>
<td></td>
</tr>
<tr>
<td>Carrier loading at the ports takes too much time</td>
<td></td>
</tr>
<tr>
<td>Carrier delivery at the ports takes too much time</td>
<td></td>
</tr>
<tr>
<td>The transport system supporting the ports are more than adequate</td>
<td></td>
</tr>
<tr>
<td>Complexity of documentation is the major problem in port operations</td>
<td></td>
</tr>
<tr>
<td>The use of technology in the ports is very important</td>
<td></td>
</tr>
<tr>
<td>Labour regulations are a minor problem in port operations</td>
<td></td>
</tr>
<tr>
<td>Cargo handlers should at least be fluent in the English language to avoid complications</td>
<td></td>
</tr>
<tr>
<td>Personal inducements / corruption are a minor problem in port operations</td>
<td></td>
</tr>
<tr>
<td>Hazardous cargoes should not be moved in international trade</td>
<td></td>
</tr>
<tr>
<td>Packaging standards of hazardous cargo moving through ports should be more strictly enforced</td>
<td></td>
</tr>
<tr>
<td>Port operations are secure from terrorist violence</td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
</tr>
</tbody>
</table>

3. In your opinion, what do you really believe would improve efficiency in the SA ports?

__________________________________________________________________________

__________________________________________________________________________
4. Should the provision of port services remain in the hands of port authorities?

Yes  No

Comments:_______________________________________________________

5. Should the port terminals be fully privatised in order to achieve more efficiency in port operations?

Yes  No

Comments:_______________________________________________________

SECTION E: Customer satisfaction

To be completed by customers, shipping companies and shippers only.

1. Using a scale of 1 (Excellent) to 5 (Extremely poor), how would you rate the quality and efficiency of the ports in terms of the following?

<table>
<thead>
<tr>
<th>Ability to get things done</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistance you receive when making special requests</td>
<td></td>
</tr>
<tr>
<td>Knowledge of the service they provide</td>
<td></td>
</tr>
<tr>
<td>Understanding your business needs</td>
<td></td>
</tr>
<tr>
<td>Other (Please state):</td>
<td></td>
</tr>
</tbody>
</table>
2. Please rate the adequacy of the technology and equipment used in the ports with regard to your requirements and needs.

1 = Fully adequate; 5 = Hopelessly inadequate

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

If inadequate, what can be improved?
________________________________________________________________
________________________________________________________________
________________________________________________________________

3. What are your current requirements and needs in terms of port services?
________________________________________________________________
________________________________________________________________
________________________________________________________________

4. What specific suggestions do you have which would help ports improve quality and value of service they provide to you?
________________________________________________________________
________________________________________________________________
________________________________________________________________

5. Using a scale of 1 (Strongly agree) to 5 (Strongly disagree), please evaluate the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice of port is made quickly using my knowledge and experience.</td>
<td></td>
</tr>
<tr>
<td>I am willing to pay higher for better service and quicker delivery.</td>
<td></td>
</tr>
<tr>
<td>It is important for ports to offer online services to customers.</td>
<td></td>
</tr>
<tr>
<td>It is important for ports to be well connected with other transportation modes.</td>
<td></td>
</tr>
<tr>
<td>Preserving my company’s reputation and satisfying customers are important.</td>
<td></td>
</tr>
</tbody>
</table>

Thank you for spending your valuable time and participating in this research study, your comments are much appreciated.