

UNIVERSITY

# **Business School**

# CRITICAL DETERMINANTS OF SERVICE QUALITY FOR THE PORT OF CAPE TOWN USERS

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# I. DECLARATION

I, Darren Roger Thomas, Student Number 9348794 hereby declare that:

- The work contained in this treatise is my own original work;
- This treatise was not submitted in full or partial fulfilment to any other recognised university for any other degree;
- This treatise is being submitted in partial fulfilment of the requirements for the degree of Masters in Business Administration; and
- All sources used or referred to have been documented and recognised.

**Darren Thomas** 

December 2018 Date

# **II. ACKNOWLEDGEMENTS**

Many people played important roles throughout my MBA journey and to all of them I owe a vote of thanks. The MBA journey has been one of the most exciting, stressful yet also very rewarding, times of my life and for this I would like to give thanks to the people who have supported me these past three years:

- My Almighty God, who granted me the perseverance and determination when it seemed impossible to continue and granted me the strength to remain focused and committed;
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#### III. ABSTRACT

This research study was motivated by the daily observed operational experiences from the perspective of the researcher's logistics business. Poor levels of operational service quality were observed in the Port of Cape Town during the 2017/2018 "wind season" which occurs from September to March, where the port lost more than 1200-man hours due to wind delays. The poor levels of operational service quality are further compounded by the effects of the wind delays and its impact on congestion at the port which results in financial loss to importers and exporters and their intermodal service providers. Nearly ninety six percent (96%) of exports from South Africa are by sea, therefore South Africa's trade with the rest of the world is by sea. Thus, ports are important economic contributors and play an important role for both inbound and outbound logistics. Service quality failures affect business-to-business players in the logistics chain. Port users suffer financial and reputational damage when containers, which are shipped via the port, are delayed due to service quality failures.

The purpose of this treatise was to determine what the critical determinants of service quality for the Port of Cape Town users are. To achieve this a conceptual research model was developed, where six variables were identified that have an influence on service quality. The six variables identified are Communication, Competence, Access, Reliability, Understanding/Knowing Customer and Tangibles. A literature review was then conducted to determine what the difference between B2C and B2B operational service quality is. This was done by investigating both the similarities and differences between B2C and B2B and providing a review of service quality and customer satisfaction.

Similarly, a literature review was also conducted to investigate the contrasts between international and local port service quality. This was achieved by investigating the importance of ports and an overview of the South African port network. An overview of the Port of Cape Town was then provided where inefficiencies in the Port of Cape Town are discussed. Service quality in selected international ports are then discussed before the chapter was concluded by providing a review of service quality at the port of Cape Town's two closest international competitors.

The methodological approach to the study was quantitative research using a survey strategy to test the conceptual model. Analysis was performed through descriptive and inferential statics.

Based on the analysis, the study could conclude by making important managerial recommendations that the management of the Port of Cape Town could implement to improve the level of Operational Service Quality at the port. Some of the recommendations are, that the ports staff should be trained in the importance of proactive communication. Port staff should receive regular training with respect to their operational functions. The port should provide a platform which will allow port users to raise concerns or provide compliments related to container operations or port staff interactions. Before communicating start up times after port stoppages, the port needs to take in to consideration the necessary time required to get staff back to their operational posts and other start-up operations when advising the port reopening time to port users. Port management should implement a better maintenance programme for the container handling equipment as it was the respondent's perception that the handling equipment used in the port is not always in good working condition.

Key Words: Ports; Service Quality; SERVQUAL

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# VII. LIST OF ABBREVIATIONS

Abbreviation	Meaning	
AFLAS Asia Freight, Logistics and Supply Chain Awar		
AGVs	Automated Guided Vehicles	
APMT	APM Terminals	
B2B	Business-to-Business	
B2C	Business-to-Consumer	
GCH	Gross crane moves per hour	
ITF	International Transport Forum	
MCLI	Maputo Corridor Logistics Initiative	
MPDC	Maputo Port Development Company	
MTSF	Medium-Term Strategic Framework	
NAMPORT	Namibian Port Authority	
NMU	Nelson Mandela University	
OECD	Organisation for Economic Co-operation and	
	Development	
OSQ	Operational Service Quality	
PLF	Port Liaison Forum	
PSQ Port Service Quality		
Ro-Ro	Roll on/Roll off	
SAASOA	South African Association of Ship Operators and Agents	
SADC	Southern African Development Community	
SOE	State-owned enterprise	
TEU	Twenty-foot Equivalent Unit	
TICTS	Tanzania International Container Terminal Services	
TNPA	Transnet National Port Authority	
ТРТ	Transnet Port Terminals	
USD	United States Dollar	
WBCG Walvis Bay Corridor Group		

# VIII. GLOSSARY

Word	Meaning
A-Check	Truck processing area at a South African port
Capesize Ships	Capesize are large-sized bulk carriers and tankers
	typically above 150,000 deadweight tonnage
Chart Datum	A chart datum is the level of water that charted depths
	displayed on a nautical chart are measured from
Dredging	To keep the bed and/ or entrance channel of a harbour
	clear or to deepen it by scooping out sand and other
	material.
Twist Lock	A twist lock and corner casting together form a
	standardised rotating connector for securing shipping
	containers on trucks

# **CHAPTER 1: INTRODUCTION**

## 1.1 INTRODUCTION

Cape Town Container Terminal (CTCT) started operations in 1977, where it enabled the movement of shipping containerised cargo, fruit, wine and white goods to and from Europe, Asia, America, Australia and West and East Africa. The terminal is connected to the hinterland via widespread road and rail networks ("Cape Town Terminal," 2013). In the shadow of Table Mountain, the Port of Cape Town lies, strategically positioned on almost the Southern tip of Africa approximately 120 nautical miles from Cape Agulhas ("Port of Cape Town," 2010). CTCT is operated by Transnet Port Terminals (TPT) a division of Transnet fully owned by the South African government, operating as a corporate entity. Transnet comprises the following divisions:

- Transnet Freight Rail the rail business unit
- Transnet Rail Engineering Responsible for maintaining rolling stock
- Transnet National Port Authority (TNPA) Acts as a landlord for South African port system
- Transnet Port Terminals (TPT) Manages cargo and port operations for the country's ports
- Transnet Pipelines Pumps and manages the storage of petroleum and gas products through a network of high pressure long distance pipes ("Transnet Overview," 2010).

This study was triggered by the poor level of operational service quality (OSQ) observed in the port of Cape Town during the 2017/2018 "wind season," which occurs from September to March, where the port lost more than 1200-man hours due to wind delays. The level of OSQ is further compounded by the effects of the wind delays and their impact on congestion at the port, which results in a financial loss to importers and exporters, as well as their intermodal service providers. Intermodal service providers are also losing credibility with their customers because of the port's level of OSQ, as reasons that are provided for delays to customers' container deliveries by the intermodal service providers are not believed by customers. In order for ports not to be left behind in the demand for port services, particularly if there are alternate transport systems, the ports must adhere to International service quality trends (Chinonye, Callistus, & Ogwude, 2004, p. 488).

To improve the OSQ at the port of Cape Town the variables that impact OSQ must be investigated to determine what their impact are on OSQ, and on the port stakeholders. Kolanovic, Dundovic, and Jugovic (2011, p. 497) identify four different groups of stakeholders:

- 1. Stakeholders paying for the service: cargo owners, consignees, owners;
- 2. Organising stakeholders: logistics operators, agents, multimodal transport operators, dispatchers. Stakeholders in this group represent port service customers;
- 3. Executive stakeholders: loading or discharging operators, transport operators;
- 4. Authorities: port authority, customs.

A model will be developed to improve OSQ in the port environment from a customer or port user perspective. The model will serve to highlight to port management and staff which are the important determinants of OSQ to focus on, with the purpose of delivering superior OSQ to the port's customers and users. Figure 1.1. below depicts the chapter 1 outline.



Figure 1.1: Chapter 1 Outline

Source: (Author's own construction)

# 1.2 PROBLEM STATEMENT

Nearly ninety six percent (96%) of exports from South Africa are by sea, therefore South Africa's trade with the rest of the world is largely done via its ports. South Africa's ports are a monopoly state-owned enterprise (SOE) and are owned by TNPA. It has been argued that because of this monopoly ownership, TNPA has shaped a situation where the port charges in South Africa are higher than international tariffs, efficiency levels are lower and the port

authorities services provided are not up to international standards (Farrell & Levin, 2014, p. 19) .The South African Association of Ship Operators and Agents (SAASOA), as published in an article, ("Ports in the firing line over 'creeping inefficiencies'," 2018) has impressed on the country's maritime sector authorities to improve administrative efficiencies at the country's eight commercial ports, to improve productivity in the shipping sector.

After extended port operational stoppages caused by nature; namely wind and fog, the port experiences congestion. There are two forms of congestion that the port is prone to; namely vehicle gate congestion and stack congestion. The former is because of poor planning of the arrival of trucks at the port's gates, while stack congestion results mainly from the port not being able to clear its stacks. The impact of poor planning at the gate is that trucks may queue to enter the port for hours. Once the trucks can enter the port the knock-on effect of the gate congestion is further aggravated by the stack congestion and a limited number of machines to adequately load containers onto trucks or discharge from trucks resulting in long waiting times within the port itself. Waiting time for a single truck once inside the port terminal can range between 15 minutes to four hours and in extreme cases more than four hours. During these service failures communication from the port is lacking and access to key staff difficult to facilitate.

This research study is motivated by the daily observed operational experiences from the perspective of the researcher's logistics business. The result of the service quality failures impacts all the business-to-business players in the logistics chain. Importers suffer financial losses when containers are not delivered on time, due to stock outages or rescheduling of production runs. Exporters may miss the vessel stacks for the intended export vessel and their cargo is therefore not shipped on the intended vessel. This service failure results in the cargo not arriving at the consignee's destination at the time it was intended, and this may negatively impact the relationship with their consignee. The missing of export vessel stacks also impacts the relationship with the exporter and their transporter, as it is the transporter's duty to ensure that the export container is stacked prior to the vessel stack closing.

The shipping line's schedule integrity is impacted as vessels spend an extended time in the port due to slow vessel operations, largely due to congestion in the port and the lack of container handling equipment. The impact to the shipping lines is not only limited to schedule integrity but also increases in bunker usage, as vessels must increase sailing speed to make up for lost time. Trucking companies, of which many are small businesses, are impacted financially due to missed loads, excessive use of diesel caused by engines idling while queuing to enter the port. Intermodal service providers (truck and rail) are losing credibility with their customers as the reason's customers, who are already frustrated due to their consignments being delayed, are provided for delays have become difficult to believe.

# **1.3 THEORETICAL BACKGROUND**

#### 1.3.1 Service Quality

Service quality, according to Parasuraman, Zeithaml, and Berry (1988, pp. 15-16) is the overall assessment of an entity's superiority and excellence. This judgement or assessment is a form of attitude, which is related but not equivalent to satisfaction. There is a distinction between service quality and satisfaction. Satisfaction is associated with an exact transaction, while perceived service quality is related to the superiority of the service. Albert (2002, p. 816) describes perceived service quality as the difference in results from the comparison customers make between the quality they expected, versus the quality experienced or the quality outcome.

Chinonye et al. (2004) suggest that consumer's judgement or their attitude to the superiority of service, or judgement of overall excellence, can be defined as perceived service quality. Contrasts made by consumers regarding their expectations with their perceptions of service rendered by the suppliers, is a result of perceived service quality. Parasuraman, Zeithaml, and Berry (1985, p. 43) postulate that there are two types of service quality: technical quality which is what the customer is receiving from the service and functional quality, which is the way the service is being delivered.

### **1.3.2 Port Service Quality**

Separate from its role as a cluster of economic activity, ports play an important role in international supply chains and multimodal transport systems. The role ports play in international supply chains and multimodal transport systems is critical to the continuous flow of goods/services, money and information. The efficient management of information flow and products is a critical function of the port because the transport nodes are important and indispensable. Service failures or a lack of reliability in the port leads to unhappy customers as a result of the disruption in the smooth movement of these flows to the next stage of the supply chain. (Yeo, Thai, & Roh, 2015, pp. 438-439).

A product or service that satisfies the expectations and requirements of customers may be defined as port service quality. To achieve port service quality requires securing a service in a reliable, safe, environmentally friendly and competitive manner, with the least risk to life, property and the environment in line with the customers' requirements (Kolanovic et al., 2011, p. 495).

Ugboma, Ogwude, Ugboma, and Nnadi (2007, p. 335) cite port efficiency as the most significant facet of service offering in a port. The ability of ports to interest shippers is due to their high level of efficiency. Reliability and speed of port services is often an indication of port efficiency.

Chinonye et al. (2004, p. 487) suggest that port user's perceptions and expectations of service quality are important to understand, in view of the importance of ports to national development. They cite two reasons for having knowledge of customer requirements and expectations:

- 1. It garners an understanding of how customers define quality of products and service, and
- 2. It assists in the creation of customer satisfaction questionnaires.

#### **1.3.3 SERVQUAL** as a tool used to measure service quality for this study

SERVQUAL is a tool widely used to measure service quality. The conceptual scale for SERVQUAL was determined from the work of a few researchers, who examined the meaning of service quality from a qualitative research study in which service quality was defined, and highlighted the dimensions along which consumers see and evaluate service quality (Parasuraman et al., 1988, p. 15). SERVQUAL as suggested by Chang and Thai (2016, p. 722), includes five dimensions; namely. Assurance (employee's ability and knowledge to inspire trust and confidence), Empathy (caring for the customers), Reliability (delivering a reliable service), Responsiveness (willingness to assist customers) and Tangibles (physical facility). Many studies have addressed the limitations of the SERVQUAL model, and these limitations include:

- The instrument mainly focuses on service delivery process (Sayareh, Iranshahi, & Golfakhrabadi, 2016, p. 205).
- The model is not ideal for all industries in all socio-cultural and economic environments. The dimensions in SERVQUAL were found by researchers to be too few or too many for the specific context of their research (Thai, 2008, p. 495).
- SERVQUAL can only be applied to the services industries identified by the model's developers and that it is confused with service satisfaction (Chang & Thai, 2016, p. 772).

Contrary to the limitations listed, a study by Ugboma et al. (2007, pp. 342-343) indicated that SERVQUAL offers flexibility, as an implied benchmark is used. This assists in determining whether service activities or behaviours exceed or are below the expectations stated by the customers. The scale used in SERVQUAL asks respondents to indicate their 'expectations' and their 'perceptions' on core service attributes such as reliability and responsiveness. As service quality expectations are fluid, SERVQUAL is ideal for capturing customer expectations that are constantly shifting. This allows for an adjustment of the service offering or the emphasis on a selected service quality attribute.

Cronin and Taylor (1994, pp. 125-130), in response to concerns raised about the relative efficacy of performance – based on perceptions-minus expectations measures of service quality, made the following important arguments regarding SERVQUAL:

- The basis of the SERVQUAL scale is the perceptions-expectations gap conceptualisation. In a focus group conducted, attributes captured were not only of service quality, but also underlying psychological processes which consumers form about service quality judgements. The conclusions from the focus group findings were that service quality judgements are made up of five attributes that consumers evaluate based on the expectancy disconfirmation paradigm;
- SERVPERF (service performance) and SERVQUAL scales are tools intended to measure service quality, which acts as a measure of a specific long-term attitude at a single point in time. Most of the conceptual support of the use of performance – based measures of service quality attitudes over disconfirmation – based measures are a result of this distinction;
- Practical issues of the measurement of service quality are that disconfirmation measures provide rich information, which has greater diagnostic value to managers than performance-based measures have.

The dimensions measured by SERVQUAL namely Assurance, Empathy, Reliability, Responsiveness and Tangibles in the study by Ugboma et al. (2007, p. 343) were identified as important indicators of port service quality. However, other dimensions of service quality that exist in ports are also important. Kolanovic et al. (2011, p. 497) suggest that as a result of service quality being defined by the market and/or its customers, it is imperative to predict their requirements, because it is the level of satisfaction achieved by these requirements that bring the service quality and customer requirements together.

Therefore, for the study to be undertaken, of how to improve operational service quality in the Port of Cape Town with a linkage to intermodal transport customers, the SERVQUAL model will be modified. Carman (1990, p. 34) suggests that SERVQUAL may be adapted or modified to fit specific research needs, or the characteristics of an organisation. To get a better understanding about the port's customers and users, the following six determinants of service quality have been chosen from a list provided by (Kolanovic et al., 2011, p. 497):

**Communication:** The ability to provide information in the appropriate language, and TPT acceptance of customer and port users' points and objections and or proposals.

**Competence:** TPT's service-providing skills and knowledge that staff must deliver the service.

**Access:** To allow customers and port users to make easy contact with key TPT staff members, suitable business hours, queuing time.

**Reliability in providing the service:** The ability to deliver what has been promised to the customer and port users with precision and accuracy in a consistent manner at the first attempt.

**Understanding or knowing customer**: The effort that is made by TPT to understand the customer's and port user's specific needs and requirements.

Tangibles: Available equipment to use, TPT appearance of personnel and equipment.

The six determinants listed will form the pillars of the operations service quality model. They will be the basis on which the quality assessment will be based.

# 1.4 THE RESEARCH QUESTIONS

Based on the theoretical background in Section 1.3, this treatise proposes the following research questions to investigate:

### 1.4.1 Main Research Question

How can the Port of Cape Town improve its operations service quality for the port users?

### 1.4.2 Secondary Research Questions

- 1. What form of communication do customers and port users need from the port administrators?
- 2. Do customers and port users perceive the port staff to have the required operational competence?
- 3. What access barriers exist for the Cape Town port users?
- 4. Do customers and port users experience port operations as reliable?
- 5. In what way can port administrators understand their customers and port users better?
- 6. How can the port administration tangibly improve port operations?

Table 1.1 below outlines the chapter headings containing the research undertaken.

Title: Critical determinants of service quality for the Port of Cape Town users		
Main Research Question (RQ <sub>M):</sub> How can the Port of Cape Town improve its operations		
service quality for the port users?		
Chapter outline		
Chapter 2:		
The difference between B2C and B2B operational service quality.		
Chapter 3		
Contrast between international and local port service quality.		
Chapter 4		
Research methodology.		
Chapter 5		
Results and analysis.		
Chapter 6		
Findings, recommendations and conclusion.		
Table 1.1: Outline of study		

The introduction provided above is encapsulated in a depiction of the research model that follows on the subsequent page.

# 1.5 THE RESEARCH MODEL

The conceptual model is depicted in the research model below. The model identifies six variables that have an influence on service quality.

Figure 1.2 is an illustration of the conceptual model.



Figure 1.2: Conceptual Model Source: Own construction

## 1.5.1 Dependent Variable

Service quality – The dependent variable will be used to determine what the determinants are that affect service quality in the Port of Cape Town.

## 1.5.2 Independent Variables

Communication – The perceived levels of communication from the port administrators and how this affects operational service quality within the port.

Competence – The perceived competence of port staff and management to deliver the required service to determine its impact on service quality within the port.

Access – The perceived approachability and ease of contact with key role players within the port location to determine how this impacts service quality within the port.

Reliability – The perceived dependability and consistency of delivering the required service and impact on service quality within the port.

Understanding/Knowing Customer – The perceived understanding of whether the port staff listens to its customers and users and how this impacts service quality at the port.

Tangibles – The perceived impact of port equipment and other infrastructure at the port to determine its impact on service quality.

## 1.6 DELIMITATION OF THE STUDY

The study will only focus on the port users and not the management and staff of the port of Cape Town. It is the data obtained from the questionnaire completed by the port users that will be used to formulate the recommendations that will be presented to the port authority's (TPT) management structures.

## 1.7 RESEARCH METHODOLOGY

#### 1.7.1 Research Design

A philosophical framework that guides how research should be conducted is known as a research paradigm. There are two main paradigms; namely positivism and interpretivism (Collis & Hussey, 2009, p. 56).

A positivism research paradigm approach will be used for this study. Bertram and Christiansen (2014, pp. 22-23) suggest that positivism in both social and natural sciences works with what is called the scientific method. To test a hypothesis using the scientific method relies on drawing conclusions, measuring and systematic observations. In the scientific method however, it is not enough that there is evidence, it must be measurable evidence. Collis and Hussey (2009, p. 56) postulate that since it is assumed that social phenomena can be measured, positivism is associated with quantitative methods of analysis. The production of quantitative data by this study will be an outcome of the research process.

### 1.7.2 Research Approach

The study was a quantitative study and the research approach was a survey distributed by electronic mail.

A mail survey methodology in a positivist study is designed to collect primary or secondary data from a sample, the aim of which is to analyse the data statistically and generalise the results to the population (Collis & Hussey, 2009, p. 76). Saunders, Lewis, and Thornhill (2016, p. 181) argue that a survey strategy is often linked with a deductive research approach. Using the approach is often used to answer the 'who', 'where', 'what', 'how many' and 'how much' questions. For descriptive and exploratory research, the survey approach therefore tends to be used. The mail survey was used to collect primary data from a sample which was made up of members from the Cape Town Harbour Carriers' Association, the Cape Town Exporters' Club, members of the Freight Forwarders' Association, staff from shipping lines and intermodal service providers not associated to any affiliation. From a potential population of 250 members, the sample size targeted the maximum number of respondents, given the constraint of the time limitations for the study to be completed and the need for voluntary participation.

#### 1.7.3 Sampling Design

(Collis & Hussey, 2009, p. 62) describe a population as a collection of items or body of people under consideration for statistical purposes. The population of the study includes all the Port of Cape Town customers and the port users.

A sampling frame is a record or list of the population from which the probability sample can be drawn (Babbie, 2010, p. 208; Collis & Hussey, 2009, p. 209). The sampling frame for the study was drawn from the list of members from the Cape Town Harbours Carriers' Association, the Cape Town Freight Forwarders' Association and the Cape Town Exporters' Club. Non-probability based sampling was used for the study. Wegner (2016, p. 161) describes the non-probability-based sampling method as a method where sample members are not selected randomly. The method of sampling to be used was convenience sampling, due to time constraints of the study, as well as the operational access to targeted respondents working in a high-paced business environment. Convenience sampling is when a sample is drawn to suit the researcher (Wegner, 2016, p. 161).

#### 1.7.4 Literature Study

The literature review was facilitated by reviewing various journal articles, publications, reports, websites and books to address the research questions discussed in Section 1.4. To accomplish the literature review, various data bases were consulted to access the necessary articles. These data bases include The Nelson Mandela University (NMU) online library and University of Stellenbosch data base. All books referenced were obtained from the Stellenbosch University Business Library. All the references that were used in this study are cited in-text and the full reference list may be found in the reference section.

### 1.7.5 Data Collection and Analysis

The population for the study was made up of members of the Cape Town Harbour Carriers' Association, the Cape Town Exporters' Club, members of the Freight Forwarders' Association, staff from shipping lines and intermodal service providers not associated with any affiliation.

For the study both primary and secondary research was conducted. Chapter 2 and Chapter 3 detail the secondary research that was conducted. The secondary research was used as the basis from which the questionnaire was constructed, for the purpose of conducting primary research. The questions found in the questionnaire were operationalised from the secondary research as found in Chapter 2 and Chapter 3.

The questionnaire was accompanied by a short cover letter that briefly described the study and emphasised that participation was completely voluntary. Section A was made up of demographic questions, which would allow for the sample of the study to be described. Section B of the questionnaire was used to ascertain the perceptions of operational service quality at the Port of Cape Town by using a five-point Likert scale. Section 3 contained a ranking scale which was used to determine level of importance for each of the six independent variables.

Collected data was captured using the Nelson Mandela University online survey tool (QuestionPro). The data was exported to Excel, the data was then cleaned, and Dr Jan Du Plessis from the Nelson Mandela University, did the analysis of the data. Both descriptive and inferential statistics were performed.

# 1.8 ETHICS

A fundamental cornerstone of research ethics is informed consent. Appropriate measures must be taken by the researcher to explain clearly and comprehensively the objectives and implications to potential participants. With this information the potential participants can make an informed decision about whether to participate and contribute to the study voluntarily (Doyle, Mullins, & Cunningham, 2010, p. 49).

The study was conducted heeding the ethical considerations mentioned above. The study was completely voluntarily. Ethical conduct was ensured for the study by protecting participants' privacy, and by ensuring confidentiality and anonymity. The Nelson Mandela University research committee ethical policy was adhered to when carrying out the research.

# 1.9 TREATISE STRUCTURE

### 1.9.1 Chapter 1: Introduction

An introduction to the study is given in Chapter 1, this is followed by the problem statement. The chapter then provides the reader with a brief theoretical background, followed by the research questions and research model. Additionally, the delimitation of the study is provided as well as a brief introduction to the methodology of the study and ethics. Table 1.1 provides the reader with the structure of the document.

# 1.9.2 Chapter 2: The Difference between B2C and B2B Operational Service Quality

In this chapter, what B2C and B2B as well as the similarities and differences between B2C and B2B, are explained. Service quality, together with B2C and B2B operational service quality, is investigated by exploring numerous journals.

## 1.9.3 Chapter 3: Contrast Between International and Local Port Service Quality

This chapter provides an overview of the importance of ports and the South African port network. Contrasts between local and international ports are explored by investigating service quality at the Port of Cape Town, Singapore, Rotterdam, Dar es Salaam, Maputo and Walvis Bay.

### 1.9.4 Chapter 4: Research Methodology

The research design which includes the various research philosophies, research methods and time horizons are explained and those chosen for the study are indicated. The unit of analysis, sampling design and various techniques and procedures of the study are elaborated upon and discussed.

#### 1.9.5 Chapter 5: Results and Analysis

In this chapter the empirical results of the study are presented, analysed and discussed. Descriptive and inferential statistics are conducted with various tables and charts used to illustrate the data.

### 1.9.6 Chapter 6: Findings, Recommendations and Conclusion

The chapter starts by providing an overview of the study. Then informed by the results presented in Chapter 5, the chapter presents the findings of the study and managerial recommendations. It also elaborates on the limitations for the study and if any future research has been identified. The chapter concludes with the researcher summarising the important points of the research project.

## 1.10 SUMMARY

The topic of the study was introduced in this chapter including the research problem; additionally, the research questions the study aims to address were also introduced. The chapter further introduced the reader to the theoretical background of service quality, port

service quality and SERVQUAL as a tool used to measure service quality for this study as well as the research model. The chapter then highlighted delimitations and the research methodology the study used. The chapter concluded with a discussion on ethical requirements before the treatise structure was introduced.

The next chapter discusses the difference between B2C and B2B operational service quality.

# CHAPTER 2: THE DIFFERENCE BETWEEN B2C AND B2B OPERATIONAL SERVICE QUALITY

# 2.1 INTRODUCTION

In Chapter 1 an outline of the purpose of the study was provided as well as the main research question and secondary research questions. In Chapter 2, the main objective is to present the reader with a literature review of the difference between B2C and B2B operational service quality. In this chapter the concepts Business-to-Consumer (B2C) and Business-to-Business (B2B) will be defined and explained and the differences between B2C and B2B will be highlighted. The sections following the explanation of B2C and B2B will provide the reader with a detailed definition of service quality and customer satisfaction. Operational service quality in B2C and B2B, and how operational service quality is measured in B2C and B2B, is then discussed.

Figure 2.1 below Illustrates the outline for Chapter 2.



Figure 2.1: Chapter 2 Outline

Source: (Author's own construction)

# 2.2 WHAT IS B2C AND B2B?

Dividing markets based on the purpose for which consumers buy products is one of the many approaches that can be used to segment markets. Based on the type of business, customers may be separated into two categories. These categories are Business-to-Consumer (B2C) and Business-to-Business (B2B). B2C marketing relates to transactions which are conducted between a firm and end-user consumers. Customers who participate in B2C transactions, purchase services and products for end use. In B2B the firm's customer is an organisation rather than an individual as is the case in B2C. Transactions in B2B are performed between

businesses or firms, where firms purchase services or products from other firms for use in the manufacture of products or service for sale. (Makanyeza & Mumiriki, 2016, p. 2).

Lilien (2016, p. 544) suggests a method to distinguish between B2B and B2C is to ask the following question: "Is the demand for a product or service derived (driven by the demand of some subsequent customers — B2B) or primary (driven by the specific tastes or preferences of the buyer — B2C)?"

#### 2.2.1 Similarities Between B2C and B2B

Evert (2004, p. 137) states that most firms are a combination of B2B and B2C. Customers cannot be placed into these two group for continuous recycling, rather the groups should be a vehicle of thought, that provide a cognitive map and a viewpoint. Within a supply chain or supply network there are several B2B stages and sub-categories; for example, for food products, the supply chain is: raw material purchasing, manufacturing, wholesaling and retailing. The food reaches the household only at the retailing stage. Retailers do not only sell to consumers but also sell to other companies. Primarily based on B2C experiences the one-to-one implementation steps are pertinent to B2B too.

B2B transactions comprise mainly transactions of equipment, supplies and raw materials that other businesses use in their operations (Lilien, 2016, p. 544), while Makanyeza and Mumiriki (2016, p. 2) state in B2B marketing, transactions between firms are where the firms purchase the products or services from other firms, for the use in the manufacturing of services or products for sale. Makanyeza and Mumiriki (2016, p. 2) add that in B2C marketing, transactions are conducted between firms and end consumers. Customers in B2C transactions purchase services and products for end use. Based on the above, both B2B and B2C involve transactions, they both have customers, and both have products and services.

### 2.2.2 Differences between B2C and B2B

#### B2C

There are three ways in which B2C differs from B2B: Firstly, the decision-making process is shorter in B2C - equated to B2B the decision-making process in B2C sales is comparatively

shorter. Secondly, there are fewer stakeholders involved in B2C transactions. Thirdly, relationships are shorter – transactions are likely to be once-off in B2C purchases with more limited time frames (Cohn, 2015).

#### B2B

B2B services differ from B2C services with characteristics such as high levels of intangibility and customisation of services, coupled with high knowledge intensity, high asymmetry between service providers and customers, highly professionalised workforce and low capital intensity (Ho, Sharma, & Hosie, 2015, p. 2).

Due to the diversity of the market structure, to build up connections over the distribution network, firms in the B2B market focus more on the differentiated strategies and competitor analysis of competing firms, while in the B2C market firms are inclined to focus on customer segmentation and then differentiate strategies to make them attractive to certain customer groups (Liu, Foscht, Eisingerich, & Tsai, 2018, p. 148).

B2B is different from B2C in several other ways. These include: a longer decision-making process – contractual and long-term business relationships need to be formed with potential buyers. There may be a need for formal presentation of proposals, or several telephone calls to several people at the prospective customer's company. A greater number of involved stakeholders – there are multiple decision makers to be consulted in B2B transactions. Long term relationships – compared to consumers, firms generally seek longer relationships. It would be costly and challenging for a business to change suppliers monthly or yearly. A lead pool that is smaller – compared to B2C, B2B involves a smaller number of buyers. A different type and higher level of product knowledge – compared to B2C the company selling the service or products will require a thorough understanding of the technical features and functionality of the service or product (Cohn, 2015).

Table 2.1 below highlights other important differences between B2C and B2B markets. Compared to B2C marketers, B2B markets: (a) target value chain intermediaries, not end consumers; (b) function in an culture driven by technology rather than marketing; (c) include a major element of economic value rather than brand value; (d) develop an economic or technical value proposition instead of a perceptual value proposition; (e) often are associated to buyers through linked production and delivery processes; (f) the purchasing process can be highly complex; (g) have fewer customers: but (h) individual transactions are far larger (Lilien, 2016, p. 544).

The key differences between B2C and B2B markets are shown in Table 2.1

B2C	B2B
Market to end-user of chain	Market to value chain
Marketing culture	Technology or Manufacturing culture;
	Industrial marketing
Value in brand relationship	Value in use, quantifiable
Perceptual proposition	Technical proposition
Transaction linkage	Process linkage
Purchases are direct	Buying sequences is complex
Customer segments are large	Number of customers are small
Smaller-unit transactions	Large-unit transactions

Table 2.1: Key differences between B2C and B2B markets Source: Adapted from (Lilien, 2016, p. 544)

# 2.3 SERVICE QUALITY

In marketing research, service quality has become a vital topic of research as a full understanding of its antecedents and outcomes may assist service firms in satisfying their customers and enhancing their profitability and business performance (Ho et al., 2015).

Service quality can be defined as the difference between the customers' perceived and expected quality of service, as customers frequently compare the services received with the service, they had expected prior to the service encounter. Service quality is an overall evaluation of service excellence, an attitude towards the service. As service quality can be evaluated by customer attitude, it is related to long term awareness (Huang, Lee, & Chen, 2017, p. 3).
Customer satisfaction is driven by service quality and it is most likely that satisfied customers will continue to be loyal customers of a firm. An advantageous impact of good service quality is that it has a positive impact on the firm's profit, as it increases the firm's customer base and allows the firm to charge higher prices for their goods and services. Therefore, understanding the factors on which consumers base their service quality perceptions is important, as it could be directly related to profitability, retention and customer loyalty (Rauch, Collins, Nale, & Barr, 2015).

Parasuraman et al. (1985, p. 42) postulate that it is not enough to understand service quality based on the knowledge of good quality. Three characteristics of service quality which have been well documented; namely inseparability, intangibility and heterogeneity should be recognised for a complete understanding of service quality. Mostly services are unable to be measured, counted, tested, verified and inventoried ahead of a sale to assure quality. Services are mostly intangible. Rather than being objects, services are performances, therefore exact manufacturing specifications regarding uniform quality can rarely be set. How consumers perceive service quality may be difficult to be understood by a company because of intangibility. Services, particularly those with high labour content are varied, their performance often differs from day to day, producer to producer and customer to customer. It is difficult to assure intended uniform quality from service personnel, as the intended service may be completely different from what is delivered to the consumer. Because of the inseparability of production and consumption of many services, quality in service is not brought about at the manufacturing plant and then delivered to the customer.

Parasuraman et al. (1985, p. 42) suggest that service literature has three underling themes:

- It is more difficult evaluating service quality than it is evaluating the quality of goods;
- Perceptions of service quality are a consequence of the comparison of actual service performance with consumer expectations;
- Service outcomes are not exclusively used to evaluate quality, they also include the assessment of the process of service delivery.

In their study to identify the dimensions of service quality in liner shipping, and examine their impact on customer satisfaction, Yuen and Thai (2015, p. 171) suggest that dimensions of service quality can be identified through frameworks. Service quality can be experienced during a service, denoted as functional quality, and at the end of the service referred to as technical quality. A customer's experience of both functional and technical quality should be compared with the expectation of their service. The ability to compare has given rise to the creation of a GAP model where service quality is measured by the difference between expectation and perception scores. The results are evaluated with reference to five dimensions of service quality. The dimensions are reliability, assurance, tangibles, empathy and responsiveness. Collectively the dimensions constitute the SERVQUAL instrument, which was claimed to be generic and applicable across different contexts of B2C versus B2B service quality.

There are several perspectives of service quality; however the conceptualisation most commonly used is based on the assumption that service quality is the difference between the customers' expectations and their perception of the actual service delivered (Pomirleanu, John Mariadoss, & Chennamaneni, 2016, p. 132).

# 2.4 CUSTOMER SATISFACTION

Satisfaction can be defined as the awareness between personal perception and product performance. It is the degree of happiness or disappointment that people feel. Customer satisfaction is multi-dimensional, and it is effortlessly influenced by service quality, personal factors, product quality, context and price. There is a causal relationship between service quality and customer satisfaction, where service quality affects customer satisfaction, which further affects future purchase intention. One of the main influences that results in customer satisfaction is service quality (Huang et al., 2017, p. 3). Service quality of a high standard should be rendered by service providers, to attain a high degree of customer satisfaction, since service quality is considered the foundation of customer satisfaction (Hussain, Al Nasser, & Hussain, 2015, p. 167). Orel and Kara (2014, p. 120) suggest that a critical input to customer satisfaction is service quality.

An instant reaction to consumption is satisfaction, whereas service quality encompasses customer's judgements in relation to the difference between the perceived and expected service. If a better than expected service occurs, perceived quality is more than acceptable and customer satisfaction occurs. However, if performance is below expectation, customer dissatisfaction occurs and may result in complaints. Higher perceived value as a result service quality is a vital driver of perceived value (Hussain et al., 2015, pp. 169-170).

Service quality and customer satisfaction infer very similar meanings, and that they are distinct constructs. The difference between customer satisfaction and service quality is that satisfaction reflects the customer's experience with the service, whereas quality relates to the core of the management service delivery. There will be no customer satisfaction if improvements to quality are not based on the needs of customers. Therefore service quality is considered a antecedent of customer satisfaction (Yuen & Thai, 2015, p. 173).

Huang et al. (2017, p. 2) state that service quality has a direct and positive influence on both customer satisfaction and customer loyalty and that customer satisfaction has a direct and positive influence on customer loyalty.

Service quality literature proposes that service quality is closely linked to customer loyalty and customer satisfaction (Orel & Kara, 2014, p. 120; Rauch et al., 2015, p. 88). To date there have been many studies, that have examined the relationship between service quality and customer satisfaction, which have confirmed this relationship. There have been a few studies that have researched the relationship between customer satisfaction and service quality in the transport sector, for instance in aviation and high-speed trains, where the relationship has been found to be positive and significant. The discussion on customer satisfaction and service quality has through research been expanded to include other marketing variables. Service quality has had a positive effect on customer loyalty and a relational benefit in the airline industry. Customer loyalty is directly affected by relational value, while service quality affects customer loyalty through customer relational benefits (Thai, 2016, p. 462).

### 2.5 B2C VS B2B OPERATIONAL SERVICE QUALITY

#### 2.5.1 B2C Operational service quality

In B2C research it was found that customers being satisfied is not sufficient, instead they should be very satisfied, which can lead to brand loyalty and improved long-term relationships with customers who are less susceptible to advances from competition. Dissatisfied customers however, through their behaviour, can express their feelings. According to research customers who are dissatisfied will communicate their bad experience to nine other people. Profitability and the reputation of a company may be impacted by these negative behavioural responses. Should companies satisfactorily resolve the customer's problems, customers who were previously dissatisfied will tell five other people about the received treatment, and are more likely than non-complainers to do business with the company again (Hussain et al., 2015, p. 168).

Lee, Kim, Ko, and Sagas (2011, p. 56) claim that in B2C marketing a reliable predictor for repurchase intention is satisfaction. Dissatisfied consumers complain more and are less likely to repurchase. However, satisfied consumers are more committed to the company and their service. Many research projects studied the theoretical relationships between service quality and other consumer variables such as customer value, customer satisfaction and customer purchase intention. Numerous research studies have supported that service quality is recognised as an antecedent to customer satisfaction. Service quality improvement has thus been acknowledged as a significant strategy.

Within the hotel industry service quality is associated with customer loyalty and customer satisfaction, and it has been proposed that attaining customer expectations relative to service quality has a direct association with the profitability of a service firm (Rauch et al., 2015, p. 88). Many companies, including banks, who have implemented superior service quality have become market leaders in terms of sales and long-term customer retention and loyalty (Munusamy, Chelliah, & Mun, 2010, p. 398). Service quality in a competitive business environment is an important differentiator, and a driver for service-based businesses. A business can influence customer value, commitment and trust by enhancing service quality.

Customer value, commitment and trust are important for long-term loyalty and business success. (Thaichon, Lobo, Prentice, & Quach, 2014, p. 1047).

Service quality and customer satisfaction measurement are critical factors in service marketing. Marketers and researchers are discovering the service quality levels of different industries by comparing the customer perceptions and customer expectations about a service. Service quality delivery to customers acts as an important strategy for the continuous existence and success of a business (Mohsan & Saida, 2015, p. 2080). Service quality is closely linked to customer loyalty and customer satisfaction (Orel & Kara, 2014, p. 120). How well the service delivered matches the expectations of the customers is measured by service quality (Thaichon et al., 2014, p. 1047).

This service quality procedure, known as SERVQUAL, is generally used to assess service. SERVQUAL is made up of five dimensions: responsiveness, reliability, assurance, tangibles and empathy, and uses a 22 – item instrument for measurement (Hussain et al., 2015, p. 168).

The SERVQUAL model dimensions are further defined as: responsiveness is the ability of the company to deliver prompt service and help customers. Reliability is delivering the promised service to customers in an accurate and dependable manner. Assurance is the courtesy and knowledge that staff have that allows customers to have a feeling of confidence and assurance. Tangibles are the physical facilities and firm's personnel and equipment's appearance. Empathy is the ability of the firm to care for and provide customers with personal attention (Dabestani, Shahin, Saljoughian, & Shirouyehzad, 2016, p. 162; Jiang, Jun, & Yang, 2016, p. 303; Makanyeza & Mumiriki, 2016, pp. 2-3).

#### 2.5.2 B2B Operational Service Quality

An important element in the management of processes within a B2B relationships is service quality as it leads to the development of commitment, trust and satisfaction. By defining and understanding B2B service quality influences on (dis)satisfaction, this provides important opportunities for learning and refining the effectiveness of the service system (Stanworth, 2012, p. 541). Several researchers have indicated B2B customers require higher quality longer term relationships, and other important requirements such as finance-related matters and the importance of deadlines, that can have a significant impact on service quality if not properly handled (Duault, 2018, p. 21).

The impact of service quality of a firm on corporate profitability has, because of growing consumer movement and intense global competition, been increasing. Because of this development, businesses have realised the importance of customer satisfaction to business success. It has been found that satisfied customers have a higher return rate and bring in new customers, whereas dissatisfied customers result in declining corporate profitability and bad publicity. The B2B model contains the marketing features of precise marketing channels, high customer switching costs, high customer loyalty and brand cognition (Huang et al., 2017, p. 1). For service firms operating in international markets, superior service quality has been accentuated as an imperative competitive advantage. Through quality management practice, competitive advantage can be achieved, which leads to a service quality that is of a higher standard than that of competitors in the foreign market (Sichtmann, Selasinsky, & Diamantopoulos, 2011, p. 2).

Professional B2B service firms mostly require close participation and involvement from the client firms to provide their services and being part of critical in-service creation and provision, as such participation and co-operation of client firms would impact their service quality expectations. Client firms who take part proactively in the service creation process may expect higher levels of service quality. Client firm participation however, may only affect the operational aspects of professional service creation and not the more important portions that requires experience and expert knowledge in conducting the assessment, examination and professional judgement (Ho et al., 2015, p. 384).

A front-line employee's ability to be proactive and take initiative is considered critical in the attainment of service quality; however, recent surveys have indicated that a large percentage of service employees show low levels of customer engagement. It has also been found that employees do not know what their company's vision and values are and what the company stood for, indicating the importance of internal marketing and training in achieving customer

engagement and delivering service quality. Service quality literature suggest that whenever employees are unable or unwilling to provide service at the required level, service quality gets negatively affected, and this underscores the critical role of customer contact employees in forming perceptions of service quality. Employees have been found to be more critical of assessments of service quality than customers. Evaluations conducted by frontline employees permit better judgement between different levels of service quality than customers. Findings are that self-evaluations are more suitable for boundary spanning personnel, particularly for frequent and routine transactions where the service script is well defined. For real time service performance it is essential for employees to evaluate service quality as they are critical in shaping a customer's level of perceived service quality during the service encounter (Pomirleanu et al., 2016, p. 132).

Early service quality research focused mostly on B2C services; however, B2B service quality research is developing a growing interest spanning many industries including information systems, distribution, audit services, logistics and manufacturing. Much of the initial studies on B2B service quality used the five dimensions in SERVQUAL while two dimensions were used by others (technical vs functional). In contrast others have developed their own measures and constructs for B2B service quality having three, four, six or even nine dimensions (Ho et al., 2015, p. 381).

SERVQUAL psychometric properties differ from consumer services, therefore the service quality measures developed for consumer services can only be used with thoughtfulness in B2B marketing. In a B2B context SERVQUAL lacks empirical validity. SERVQUAL low predictive value weakens its relevance to B2B service quality. Researchers should therefore develop context-specific measures. (Stanworth, 2012, p. 543).

### 2.6 SUMMARY

The aim of this chapter was to highlight the differences between B2C and B2B operational service quality. First, the chapter reviewed what B2C and B2B represent and provided an overview of the similarities and differences between B2C and B2B. Second, service quality and customer satisfaction were defined, allowing the reader a better understanding of the

concepts. Finally, B2C and B2B operational service quality was reviewed highlighting the SERVQUAL model's relevance to B2C and B2B.

The chapter that follows will investigate the contrasts between international and local port service quality by conducting a review of service quality at selected ports.

# CHAPTER 3: CONTRASTS BETWEEN INTERNATIONAL AND LOCAL PORT SERVICE QUALITY

# 3.1 INTRODUCTION

In this chapter the reader will be provided with an introduction of the importance of ports. An overview of the South African port network is provided, followed by an investigation of the contrasts in international and local port service quality by providing details of service quality in selected ports. The chapter is concluded with a brief overview of the reported literature.

Figure 3.1. illustrates the outline of Chapter 3.



#### Figure 3.1: Chapter 3 Outline

Source: (Author's own construction)

### 3.2 IMPORTANCE OF PORTS

Technological advances in communication and transportation, together with a free-market philosophy, have given rise to an extraordinary mobility of goods and services. This has resulted in regional economies of the world rapidly integrating into one global economy. The oceans, which serve as massive transport means at low costs, have become major international trade routes. Port and shipping industries play a critical role in the incorporation of local and national economies into the international economy (Jung, 2011, p. 2).

A port contains one or more harbours and is located on a shore or coast, where ships can dock and transfer cargo or people to or from land. Port location selection is to optimise the navigation of water and access to land, for shelter from waves and wind and for commercial demand. Harbours can be artificial or natural. An artificial harbour has intentionally constructed sea walls, breakwaters or jetties, or it may have been constructed by dredging, and therefore requires maintenance in the form of intermittent dredging. A natural harbour in contrast, is surrounded on several sides by raised land (Dwarakish & Salim, 2015, p. 296).

Ports are important national economic contributors and play an important role for both inbound and outbound logistics. Internationally, seaports, besides being facilities where containers and cargoes are discharged and loaded from and onto vessels, also act as distribution centres where value added services such as packaging, labelling, and cross docking are provided (Thai, 2016, pp. 458-459). The growth in seaborne trade has been fuelled by globalisation and this has been seen by growth in the international port infrastructure and business sector over the past few decades. The importance of port performance is highlighted in the following aspects. Firstly, as a result of the lower costs and large volume compared to other transport modes, ports attract ninety percent (90%) of world cargo transportation and international trade. Secondly, in the supply chain of international trade, ports are a key element and therefore, port efficiency plays an important role in a country's competitiveness. Thirdly, as transportation by water consumes relatively less fuel than other transport modes and increasing environmental protectionist consciousness, these factors fuel the demand for transportation of cargo by ships (Feng, Mangan, & Lalwani, 2013, p. 491).

# 3.3 OVERVIEW OF THE SOUTH AFRICAN PORT NETWORK

The world's biggest shipping lines, using important shipping lanes, pass along the coastline of South Africa in the Indian and Atlantic oceans. Eight commercial ports, which act as the channels for trade between South Africa and its trading partners are responsible for the smooth transition of approximately ninety six percent (96%) of South Africa's exports which are transported by sea. The eight commercial ports are the ports of Cape Town, Saldanha and Mossel Bay in the Western Cape; the ports of Ngqura, Port Elizabeth and East London in the Eastern Cape; and the ports of Durban and Richards Bay in Kwazulu-Natal (Ports Regulator of South Africa, 2016b, p. 7).

Figure 3.2 below illustrates global shipping routes.



Figure 3.2: Global Shipping Routes Source: (Ports Regulator of South Africa, 2016b, p. 7)

All ports in South Africa are state owned and are managed by the state owned TNPA which manages the ports in a landlord capacity and is responsible for the effective, economically efficient and safe functioning of the national port system ("TNPA Overview," 2010). TPT is responsible for commercial handling of sea freight services across exports, imports and transshipment of containers, automotive products, bulk and break-bulk. TPT is responsible for the 33

operations of terminals in seven of South Africa's commercial ports; namely Cape Town, Saldanha, Ngqura, Port Elizabeth, East London, Durban and Richards Bay. The operations performed by TPT cover export and import operations across the following cargo sectors: Agricultural and Mineral bulk, Containers and Ro-Ro (roll on/roll off) ("Transnet Port Terminals Overview," 2013).



Figure 3.3 illustrates a map of South Africa's port network.

Figure 3.3: South Africa's Port Network Source: (Transnet, 2018)

Six of South Africa's ports; namely Cape Town, Port Elizabeth, Ngqura, Richards Bay and Durban, handle containers. Table 3.1 below indicates the ports' annual container throughput

for 2017. Based on the table Durban handles the most volume followed by the Port of Cape Town with Richards Bay handling the lowest container volume.

The container volume in TEU that moved through South African ports for 2017 is shown in Table 3.1

	Port	Volume in TEU
1	Durban	2 699 978
2	Cape Town	881 913
3	Ngqura	806 090
4	Port Elizabeth	168 283
5	East London	63 324
6	Richards Bay	15 241

Table 3.1: 2017 container volume through South African ports.

Source: ("Port Statistics," 2018)

Of the eight commercial ports, Durban was formerly the largest container handling facility in the Southern Hemisphere, with Ngqura in the Eastern Cape the container with the deepest draft in Africa. Durban is Africa's busiest port with three out of every five containers leaving or entering South Africa through the port. Due to constraints experienced in the port some exporters and importers have bypassed Durban opting for ports such as Port Elizabeth, Maputo in Mozambique and Walvis Bay in Namibia. One reason for these developments is that South Africa lags in port productivity behind its local competitors. To address the situation port infrastructure development has been prioritised; however, performance and efficiencies also require investments. The focus has been on the main container ports of Durban, Ngqura and Cape Town where handling capacity has been receiving much attention (PWC, 2013, p. 71).

# 3.4 CONTRASTS BETWEEN LOCAL AND INTERNATIONAL PORT SERVICE QUALITY

## 3.4.1 The Port of Cape Town

De Wet (2014, p. 64) in his study "*A dry port as an expansion option for the Cape Town container terminal,*" identified the following inefficiencies within the supply chain of the Port of Cape Town:

- Customer discipline and information integrity;
- Access to the hinterland;
- Vessel congestion at port;
- Road congestion;
- Insufficient cargo being transported by road;
- Low productivity.

Of the inefficiencies highlighted in his study the inefficiencies that are relevant to port service quality are information integrity and customer discipline, vessel congestion at port, road congestion and low productivity.

### 3.4.1.1 Customer discipline and information integrity

De Wet (2014, pp. 64-65) identified customer discipline and information integrity as the main inefficiencies. The inefficiencies were identified as a result of manual submission of information which necessitates recapturing of information. To address the inefficiency TPT has rolled out Navis SPARCS, a national operating system. The Navis SPARCS system integrates all South African ports and rail terminals and allows for the transfer of information between shipping lines and the port operator.

### 3.4.1.2 Vessel congestion and road congestion

Container cargo volume increases worldwide have resulted in the number of vessel calls increasing at all South African ports. The following factors lead to vessel congestion and delays at most ports including the Port of Cape Town: inclement weather conditions which cause a bunching of vessels; inefficient rail or road transport systems; inefficient container

handling equipment at container terminals. Road congestion (one of the main problems faced by the Port of Cape Town) is a result of the geographic location of the port of Cape Town. The basis of the problem is the historic development of Cape Town and that the growth of the city is directly linked to the growth of the port. This development has resulted in unplanned infrastructure surrounding the port that is unable to accommodate commuter and freight traffic volumes (De Wet, 2014, p. 67).

L. Venter (2018) in her article, "*No end to Cape port congestion*," interviewed Terry Gale, Chairman of the Exporter's Club Western Cape and Mike Walwyn, chairman of the Cape's Port Liaison Forum (PLF). They have cited that, other than wind that was a major factor resulting in vessel waiting time and congestion, the state of container handling equipment was also a major contributing factor. The lack of information was also adding to the frustration of the industry, and an incident cited in the article was vessels not berthing for two weeks but there was no communication forthcoming from TPT for the reasons of the delay. There have also been frequent port closures because of labour feedback meetings usually held for one hour at a shift changes, which was affecting road hauliers most, having a real knock-on effect on their businesses due to the delays.

#### 3.4.1.3 Low productivity

The Port of Cape Town's handling productivity has historically been low compared to other marine ports around the world (De Wet, 2014, p. 67). There have however been improvements in gross crane moves per hour across all South African terminals. This can be attributed to an investment in superstructure across the port system. The investments have put South African terminals on par with European terminals handling vessels of similar size and volumes. A target of 35 gross crane moves per hour (GCH) has been set by the Medium-Term Strategic Framework (MTSF) 2014-2019, to be achieved by 2019. Variable performances at four of South African container terminals are shown in Figure 3.4. While still below the target however, Cape Town and Ngqura have come close to meeting these targets. The number of 35 to 45 GCH is said to be the global average. It is however, expected that ports handling different vessels will have different levels of performance. Figure 3.5 provides a high level comparison for ports handling 8000 TEU vessels and less (Ports Regulator of

South Africa, 2016a). Gross crane moves per hour for four South African ports are shown in Figure 3.4



Figure 3.4: Gross crane moves per hour Source: (Ports Regulator of South Africa, 2016a, p. 22)



#### Figure 3.5 illustrates GCH for terminals handling 8000 TEU or less.

Figure 3.5: GCH for terminals handling vessels with 8000 TEU or less Source: (Ports Regulator of South Africa, 2016a, p. 22)

### 3.4.2 The Port of Singapore

For the thirtieth time the Port of Singapore was crowned the "Best Seaport in Asia" at the 2018 Asia Freight, Logistics and Supply Chain Awards (AFLAS) on the 15 May 2018 at the event held in Shanghai. The award honours organisations for demonstrating consistency and leadership in service quality, customer relationship management, innovation and reliability ("Singapore named "Best Seaport in Asia" for 30th time," 2018).

The Port of Singapore consists of terminals located at Brani, Keppel, Tankong Pagar, Pasir Panjang, Jurong and Sambawang. All vessel types can be accommodated at the terminals including container ships, bulk carriers, ro-ro ships, cargo freighters, coasters and lighters. The terminal is managed by two commercial port operators, PSA Singapore Terminals, who manages most of Singapore's container handling and Jurong Port Pte Ltd, which is Singapore's bulk cargo and conventual terminal operator. PSA Singapore Terminals operates fifty two berths across four container terminals at Tanjong Pagar, Keppel, Brani and Pasir Pnajang as one seamless integrated facility ("Terminals," 2016).

In an article written by (Tan, 2015), Singapore's container ports productivity was questioned. Data from the Organisation for Economic Co-operation and Development (OECD), International Transport Forum (ITF) providing data on berth productivity, indicated that the country's terminals are lagging the major ports in China and Malaysia in productivity. In 2014 Singapore's container ports on average moved 66 containers per hour, compared to its closest geographical rival, Tanjung Pelepas in Malaysia with an average of 81 container moves per hour. Compared to other ports in the region Shanghai had the world's highest container moves per hour at 167. Singapore was also trumped by major ports in the region – Shenzhen (133), Hong Kong (74) and Malaysia Port Klang (69). Maritime officials have cautioned that the data must be greeted with caution, as the complexity of the port's operations does not present a full picture of the numbers. Experts have cautioned that while productivity is important in a port's competitiveness service, quality also plays an important role.

Thai (2016, p. 469) in his study "The Impact of Port Service Quality on Customer Satisfaction: The Case of Singapore," found that management related PSQ factors have the most significant influence on customer satisfaction. In his study, management related PSQ involved the most efficient selection and deployment of resources to meet or exceed customers' expectations and needs, skills, knowledge and professionalism of employees and their ability to transform customers requirements and needs into what they really want. It was also a finding of the study that the image and social responsibility - related dimension of PSQ, which was defined as the customer's overall perception of the service organisation and ethical perceptions and operations of an organisation to behave in a socially responsible way, had an important positive impact on customer satisfaction. This was an important finding as other than having a reputation for safe, reliable operations, having environmentally friendly operations are critical to service of a high quality in the maritime industry, including that of ports.

#### 3.4.3 The Port of Rotterdam

Both by TEU and tonnage the Port of Rotterdam is Europe's busiest port and it continues to grow. The highest level since 2000, Rotterdam's share of the European container market is now at thirty one percent (31%). In 2017, containerised container throughput at the Port of Rotterdam rose by eleven percent (11%) to 13.7 million TEU. The Port of Rotterdam has invested extensively in digitisation as a means of maintaining its front running position. Rotterdam has some of the most advanced terminals in the world and multiple new initiatives are being rolled out to become the smartest port on the planet (MAREX, 2018). The largest port in Europe is the Port of Rotterdam, with a total surface of 12 500 hectares. It has a depth of twenty four metres with eighty terminals of which Maasvlakte 2 is the most advanced (Port of Rotterdam, 2015).

The goal of the Port of Rotterdam Authority, with Maasvlakte 2 is to be a global leader in the field of sustainability. Maasvlakte 2 container terminals are the most modern and advanced in the world. The terminal's Automated Guided Vehicles (AGVs) to its quay cranes are fully electric ("Maasvlakte 2," n.d.). Opened in 2015 and operated by APM Terminals (APMT) Maasvlakte 2 is the world's most advanced fully automated terminal and is equipped with the

capability to handle the largest container vessels way into the future. The terminal is the world's first zero emission terminal for  $NO_x$ ,  $CO_2$ , and particulate emissions because of the terminal's use of electrified equipment and the use of green energy. Approximately 80 percent (80%) of crane movements at the terminal are automated with the remaining manual operations performed remotely. The terminal's dual lifting technologies allow for greater stability, which allows for uninterrupted operations under severe weather conditions. Truck container collection and deliveries at the terminal are arranged via a flexible online booking system. This results in containers waiting to be collected and avoids truck queues and delays ("About," 2018).

The dangers of being automated are that the ports and terminal industry are not immune from the cyber-attacks that are increasingly sweeping through the business world, and the Petya/Not Petya and WannaCry attacks served a brutal wake-up call (MacIntrye, 2017). Port and vessel data at Maersk terminal division accessed after the 27 June 2017 cyber-attack, indicated from a vessel-handling perspective, that the impacts on the terminals were not outside normal operational fluctuations and APMT continued largely uninterrupted. APMT's fully automated Maasvlakte 2 was an exception, as operations at the terminal were severely impacted with no new vessel arrivals from 29 June 2017 until the terminals in the Port of Rotterdam, shippers with cargo at Maasvlakte 2 were the hardest hit. Shippers reported having difficulty accessing their cargo in the days after the cyber-attack as the terminals and Maersk were forced to shut down their IT and communications system and revert to manual operations (Knowler, 2017).

With continued growth in the continent's container trade, Europe's gateways and inland logistics networks are being placed under increased pressure, with the Port of Rotterdam and Antwerp struggling to manage the huge amount of barge traffic causing severe congestion at terminals and ports. The problem has plagued the Port of Rotterdam for some time, leading to lengthy delays to inland cargo, with shippers complaining that they must shift their cargo from barge to truck, resulting in significant cost implications. To address the complex problem the port authority has had top level consultation with forwarders, shippers, barge operators,

deep sea terminals, inland terminals and shipping companies, all agreeing to make a joint effort to solve the bottlenecks. The port authority has also employed a chain performance dashboard that improves the understanding into the logistics chain and will make it easier for the parties to detect the source of congestion and together work towards a solution (Knowler, 2018).

#### 3.4.4 Dar es Salaam Port

The principal port of Tanzania is Dar es Salaam Port. The port handles approximately ninety five percent (95%) of Tanzania's international trade. The land locked countries of Zambia, Malawi, Burundi, Uganda and Democratic Republic of Congo are served by the port. The port has eleven deep-water berths with a total guay length of two thousand six hundred metres. Tanzania International Container Terminal Services (TICTS), a private company, is the terminal operator. The container terminal operates at berth number 8-11, where TICTS manages the container handling activities ("Dar es Salaam and Central Coast Sea Ports," 2018). Cargo volume handled at Dar es Salaam Port has been growing at an average of nine percent (9%) per year: in 2011,10.4 million tons were handled, 13.1 million tons were handled in 2013 and in 2016 this rose to 13.8 million tons ("A Much Awaited Refurb for a Very Busy Port," 2017). Contrary to the growth witnessed over the last decade, the trend for the short term looks less promising, as containerised cargo through the Dar es Salaam Port was down fifteen percent (15%) year on year for the first four months of 2016. The decline in container throughput reflected Tanzania's decreasing competitiveness in the regional contest among Atlantic and Indian Ocean seaports to capture transit trade to landlocked Zambia and Democratic Republic of Congo. The high cost associated with importing and exporting through Dar es Salaam, had led by early 2016, to a large diversion of a growing share of transit trade to other regional ports such as Beira (Mozambigue), Durban (South Africa), Walvis Bay (Namibia) and Lobito (Angola), all of which have transport corridors connecting the Democratic Republic of Congo and Zambia (Elliot, 2016, p. 4).

The port suffers from poor port and berth productivity, which includes high berth occupancy rates and lengthy cargo dwell times. Container vessels are subjected to lengthy berthing delays, with vessels having to queue on average for ten days and in some cases, double the

amount of time (Mooney, 2017). The poor berth and port productivity are two of the historic bottlenecks at the Port of Dar es Salaam caused by poor infrastructure. They are set to ease once the port's flagship USD 750 million upgrade is completed in 2020 as part of the Dar es Salaam maritime Gateway project, funded by the UK Department for International Development, the World Bank and others. The upgrade consists of two phases: Phase 1 is to create more container stacking space and relocation of five sheds to decrease congestion. Roads leading to gates would be upgraded and integrated security and scanning systems installed. Phase 2 includes dredging of the turning basin and channels in the port as well as the widening, strengthening and modernisation of berths to allow larger vessels to be handled (Elliot, 2016, p. 10).

Because of the increase in volume to Dar es Salaam Port, there are many more truckers at the port to transport cargo to Tanzania's landlocked neighbours. The port, however, is unable to adequately service all of them. The port may for instance summons up fifty trucks to load up and go but does not end up servicing them all. This makes it difficult to plan for the long-haul trucks. The delays do not only affect drivers' planning but waiting also poses a security risk as there is no safe place to park. Should drivers fall asleep they face the risk of equipment from their trucks being stolen ("A Much Awaited Refurb for a Very Busy Port," 2017).

Dar es Salaam Port is perceived to have a lack of accountability and transparency, with officials regularly abusing their positions of office. Smuggling and an explosion of counterfeit products in the domestic market, are an indication on the port's weak controls and standards. Corruption at the port has become both a source of inefficiency and a direct result of inefficiency, where bribes have become necessary to facilitate processes. The magnitude of the corruption can be illustrated by the amount importers are prepared to pay to limit delays. Importers with merchandise valued around USD1358 per ton are prepared to pay up to USD 17.4 per ton to speed up the processing of their import containers as that is equivalent to one day's extra waiting time (Elliot, 2016, p. 11).

(Elliot, 2016, p. 13) cites a lack of stockholder engagement as having a negative influence on the port's customers and other stakeholders. An incident cited was when a new port operations management system was implemented, replacing one which both the port and key stakeholders were comfortable with, without consulting business beforehand. This change resulted in considerable challenges for port users such as dry port operators and clearing and forwarding agents.

All these inefficiencies and corruption have resulted in customers from surrounding countries deciding to stop using the port over what they termed unfavourable conditions. This has led the government to assure customers that the Dar es Salaam port has improved service delivery, as well as ensuring maximum security for goods shipped via the facility. The port has made progress in digitising the facility and has introduced e-payment systems to avoid delays (Mirondo, 2018).

# 3.5 COMPARISON OF SERICE QUALITY AT THE PORT OF CAPE TOWN'S TWO CLOSEST INTERNATIONAL COMPETITORS

### 3.5.1 Port of Maputo

The Port of Maputo is situated in Southern Mozambique. A national private company, Maputo Port Development Company (MPDC), has a concession for Maputo's port to 2033, with an option of an additional ten years after 2033. MPDC holds the rights to rehabilitate, operate, finance, construct, manage, maintain, optimise and develop the entire concession area. The powers of port authority are also held by MPDC, having the responsibilities of piloting, tug boat operations, maritime operations, stevedoring, warehouse and terminal operations, as well as the port's development and planning ("About Maputo Port Development Company," 2018).

The container terminal at the Port of Maputo is operated and managed by DP World Maputo, which has a concession to operate and manage the Maputo container terminal until 2043. The container terminal has ten berths, is three hundred and eight metres in length and has a capacity of 350 000 TEUs ("Container Terminal," 2018). The port completed a dredging operation in December 2016, where the access channel was dredged from eleven metres to fourteen-point-four metres chart datum. The dredging has transformed the port from an alternative port to a port of choice. By having three additional metres the port is now able to

service Capesize ships. This could not be achieved in the past, resulting in ships having to make double stops, one at the Port of Maputo and another at a different port in the region, or at worse case, vessels had to divert to neighbouring ports (I. Venter, 2017). In April 2018 DP World Maputo recorded the highest productivity to date at the Port of Maputo with 57.47 Berth moves per hour ("Maputo marks productivity milestone," 2018). This outperforms TPT 2017 container moves per ship working hour in at Durban 's Pier 1 terminal by 45 moves, Pier 2, 55 moves; Cape Town Container Terminal 53 moves; Port Elizabeth 45 moves (Transnet, 2018)

The literature on service quality complaints at the Port of Maputo over the past five years is scant. Simelane (2014) in his article, *"Red tape, graft retard Maputo Corridor,"* states that greater use by South African shippers of Mozambique's main port in Maputo would have a positive effect on the economies of both countries. He points out however, that many challenges, some political and infrastructural, hindered the use of the port by South Africans. He highlighted that port congestion and a lack of rail services led to delays and a negative perception about Mozambique, which led to low utilisation of the port.

In 2004 the Maputo Corridor Logistics Initiative (MCLI) was founded. The Maputo corridor is positioning the Port of Maputo as a port of choice for regional importers and exporters, as the Maputo Development Corridor unlocks the land locked regions of South Africa (example the Gauteng region) and Swaziland, making the corridor a true transport corridor. The governments of Mozambique and South Africa have promoted the revival of the Maputo corridor as part of a greater special development initiative, with substantial private-and public-sector investment and bilateral policies. The aim is to stimulate substantial growth and development in the region. The following challenges have been identified:

- Operational hours and border procedures need continuous improvement;
- Competitive rates, capacity and higher service levels for rail, road, terminals and shipping lines are needed;
- Continuous implementation and enhancement of information services are important ("Maputo Development Corridor," n.d.).

With the current and future development of the Port of Maputo to its infrastructure and continued dredging, this enhances the possibility of mega ships sailing between South America and Asia to call at the Port of Maputo. With the public in Durban objecting to expansion of the port and the already congested land connection between Durban and Johannesburg, and massive predicted increased volume along the link, the Port of Maputo is an attractive alternative for mega vessels on the South America Asia route, with a possible call to Southern Africa (Valentine, 2017).

#### 3.5.2 Port of Walvis Bay

The Port of Walvis Bay handling five million tons of cargo and receiving approximately three thousand vessel calls each year, is Namibia's largest commercial port. The port is a natural gateway to international trade, located strategically halfway down the coast of Namibia with access to principal shipping routes. Walvis Bay has temperate weather conditions all year long, thus as a result, no delays because of weather are experienced at the Port of Walvis Bay ("Welcome to the Port of Walvis Bay," n.d.).

The Namibian Port Authority (NAMPORT) is a state-owned enterprise, which is headquartered in Walvis Bay, and manages the Port of Walvis Bay. Some of NAMPORTs key roles are to cater for current trade needs and manage the port facilities; to identify future demands development of the port; and through cost effective and efficient and reliable supply of port services it contributes to the competitiveness of the Southern African Development Community (SADC) region; assists the development of cross border trade as the founding architect of the Walvis Bay Corridor Group (WBCG) ("At a glance," n.d.). Expected to be commissioned in 2019, construction on the Port of Walvis Bay's new terminal started in mid-2014. Being built on reclaimed land from the bay the new terminal will add forty hectares to the existing port. Capacity to the terminal will increase the port's capacity to 750 000 TEU per annum, almost double the current capacity of 350 000 TEU per annum ("New Container Terminal," n.d.).

A report compiled by Botes, Buck, and Shaw (2018, p. 28) highlights a comparison of actual throughput with theoretical design capacity for selected ports in Africa. It can be noted from

Figure 3.5 below that comparing actual throughput of Southern African ports with their theoretical design capacity is at seventy fiver percent (75%), and interpreted, this means the ports do not have much access capacity, except for Walvis Bay and Ngqura whose design capacity far exceeds its volume throughput. In ports where the volume throughput exceeds the actual throughput capacity, this phenomenon often leads to considerable delays especially during busy periods. Walvis Bay does not suffer from this phenomenon, and NAMPORT is able to highlight the fact that the port does not suffer delays or congestion.



Figure 3.6 illustrates a comparison of throughput and theoretical capacity and selected ports

Dall (2017), in his article *"Is This Country the New Commercial Gateway to Southern Africa?"* claims that since 2012 the natural deep-water Port of Walvis Bay has started to fulfil its potential as a regional logistics hub. When in the year 2000 the WBCG group was founded, the Port of Walvis handled approximately 30 000 TEU per year, the majority of the container's Namibian imports or exports. In 2016 approximately three hundred and seventy thousand containers were shipped through Walvis Bay to places as far as Lubumbashi in the

Figure 3.6 Comparison of throughput and theoretical capacity of selected ports (TEU's p.a.) Source: (Botes et al., 2018, p. 28).

Democratic Republic of Congo, Lusaka in Zambia and Gaborone in Botswana. Botes et al. (2018, p. 32) claim that ports form an integral part of the overall logistics chain. Governments and port authorities must look beyond national boundaries to increase port catchment beyond national borders and to achieve regional efficiencies. Port development emphasis should be on maximising value creation for all stakeholders. A port's efficiency is linked to overall transport capacity, as ports are nodes in a transport system. A transport network determines the efficiency of a port, in terms of how efficiently goods are imported or exported. If connections are poor, countries pay more for their exports and thus, get less for their exports. Dall (2017) states that WBCG has identified strategic corridors and has brought together key players in Namibia and across borders by means of memorandums of understanding to create comprehensive propositions.

The Walvis Bay corridors are made up of a transport network linking the Port of Walvis Bay with the Trans-Caprivi (Walvis Bay-Ndolo-Lubumbashi), Trans Kalahari and Trans -Cunene corridors. The efficiency of the port and fast, safe and efficient road and rail transport along the three corridors, assist in reducing transport costs, making the regional economy more attractive to global players ("Walvis Bay Corridor Group Connecting Southern Africa to the rest of the world," n.d.).

The port's expansion, its efficiency and strengthened trade corridors and the Port of Walvis Bay's geographic position being closer to Europe and North and South America, allows the port to offer a quicker solution to the Gauteng region of at least five to seven days (Larkin, 2017).

# 3.6 SUMMARY

The primary purpose of this chapter was to investigate the contrast between international and local port service quality.

To achieve the primary purpose of the chapter an overview of the South African port network was provided to the reader detailing key operational and productivity figures. A comparison of service quality of international ports was provided, where key service issues in the selected ports that hamper PSQ, were provided. Where these could be found, the various measures that port authorities have put in place to overcome service quality issues have been detailed. The literature also informs that the Ports of Maputo and Port of Walvis Bay are increasingly beginning to exert competition on the Port of Cape Town and Durban. Due to the Port of Maputo and Walvis Bay improving road and rail networks and increased efficiency, they are threatening to divert cargo destined for the hinterland from the Port of Cape Town and Durban.

The chapter that follows will discuss the research methodology of the study.

# **CHAPTER 4: RESEARCH METHODOLOGY**

# 4.1 INTRODUCTION

Secondary research by means of a literature review in Chapter 2 discussed both the importance of service quality in general, and service quality in operations management.

In Chapter 3 contrasts between local and international port service quality were reported, by investigating service quality of selected ports namely Port of Cape Town, Singapore, Rotterdam, Dar es Salaam, Maputo and Walvis Bay.

The aim of Chapter 4 is to explain the chosen research methodology selected for the treatise and how the questionnaire was operationalised. Chapter 4 will firstly start by elaborating on the definition of research. Secondly, the chapter will discuss the research design which includes various research philosophies and approaches, research methodology and strategies, and time horizons. Thirdly, unit of analysis and sampling design is defined and explained. Lastly there is a section on techniques and procedures where data collection and data analysis and their subsections are discussed. The chapter is concluded with a section on ethics.





Figure 4.1: Chapter 4 Outline

Source: (Author's own construction)

# 4.2 DEFINITION OF RESEARCH

Sekaran and Bougie (2010, p. 3) define business research as an organised, critical, systematic, data based, objective, investigation or scientific investigation into a specific problem, the purpose of which is to find solutions or answers to the problem.

Saunders et al. (2016, p. 5) suggest that part of the research process is the collection of data. It will not be research if the collection process is not in a systematic way, on its own and with a clear purpose. If there is no interpretation of the data collected it is not research. Research has several characteristics: the collection of data is systematic; the interpretations of data is 51 systematic; the purpose of research is clear, which is to find things out. The systematic process people undertake to find out things, and in so doing increase their knowledge can be defined as research. From this definition, important phrases are "systematic" and "to find out things." 'Systematic' suggests that research is not based just on beliefs but on logical relationships.

The specificity of its purpose is a useful way to describe research. Research can be described in two ways: applied research and basic research. Applied research is conducted to enhance the understanding of a management or business problem. Basic research is conducted to increase the bounds of knowledge in general and is not aimed at solving a pragmatic problem (Saunders et al., 2016, pp. 8-9; Zikmund, Babin, Carr, & Griffin, 2010, pp. 6-7). Both applied and basic research were applied in this treatise. Applied research was used to respond to the main research question: How can the Port of Cape Town improve its operations service quality for the port users? Through basic research, the study will add to the very sparse volume of literature of operational service quality in ports.

(Zikmund et al., 2010, p. 61) suggest that a general pattern is followed in business research. The following stages of business research are offered by them:

- Defining of the research objectives;
- Design and planning of the research;
- Sample planning;
- Collection of data;
- Data analysis;
- Conclusion formulation and report preparation.

For this study the research process to be followed, is the research process described by means of an onion analogy (Saunders et al., 2016, p. 124). The layers of the onions depict the general sequence of the research process with data collection and data analysis at its core.

The research onion analogy is illustrated in Figure 4.2 below.



Figure 4.2: The Research Onion Source: (Saunders et al., 2016, p. 124)

# 4.3 RESEARCH DESIGN

The starting point of determining the research paradigm is research design (Collis & Hussey, 2009, p. 11; Saunders et al., 2016, p. 163). A philosophical outline that guides how scientific research should be conducted is referred to as a research paradigm (Collis & Hussey, 2009, p. 55). On the outer layer of the research onion Saunders et al. (2016, p. 124) identify the four research paradigms; namely positivism, realism, interpretivism and pragmatism. Collis

and Hussey (2009, p. 56) identify the two main paradigms as positivism and interpretivism. It is the aim of this section to explore these two main paradigms.

#### 4.3.1 Research Philosophies and Approaches

Collis and Hussey (2009, p. 56) assert that positivism is supported by the belief that reality is independent of us, the goal is to use empirical research to discover theories. When conducting business research under a positivism paradigm, the focus is on theories to predict and/or explain social phenomena. Saunders et al. (2016, p. 137) claim that to generate a research strategy, to collect data using the positivism paradigm, the researcher would be likely use theories to develop a hypothesis. The testing and confirmation, in whole or in part, or refutation of the developed hypothesis, will lead to the development of a further theory, which through further research, may be tested. Since social phenomena can be measured, positivism is associated with a method of analysis that is quantitative (Collis & Hussey, 2009, p. 56; Saunders et al., 2016, p. 138).

Interpretivism argues that, because humans create meaning they are different from physical phenomena. These meanings are studied by interpretivists. The interpretivist research purpose is to create new, better understandings and interpretations of social worlds and contexts (Saunders et al., 2016, p. 140). Collis and Hussey (2009, p. 57) state that interpretivism is supported by the belief that social reality is not objective but highly subjective because it is formed by our insights. Because it is impossible to separate what is on the researcher's mind with what is in the social world, the researcher interacts with what is being researched.

Saunders et al. (2016, p. 145) highlight three approaches to theory development. First, the deductive approach is used when the research starts with theory, which is developed from reading academic literature and the theory is tested by designing a research strategy. A deductive approach is often associated with quantitative data collection (Saunders et al., 2016, p. 145) and positivism (Collis & Hussey, 2009, p. 188). Second, an inductive approach is often associated with qualitative data collection where the researcher will analyse data and develop theories from the interpretation of the data, which the researcher will relate to

literature (Saunders et al., 2016, p. 145). Third, the abductive approach is where data is collected to explore a phenomenon, explain patterns and identify themes, to modify an existing theory or generate a new theory, which will be tested through additional data collection (Saunders et al., 2016, p. 145).

This study will follow a positivistic research philosophy as the objective of the study is to determine the relationship between the dependent variable - service quality and independent variables introduced in the conceptual model, namely: Communication; Competence; Access; Reliability; Understanding/Knowing Customer and Tangibles.

The research approach to be used is a deductive approach. The literature reviewed in Chapter 2 and Chapter 3 was used to design the research strategy that was used to test the conceptual model.

### 4.3.2 Research Methodology and Strategy

Research methodology assists researchers in defining the method used to collect and analyse data. There are three methods available to be used, these are quantitative, qualitative and mixed methods (Saunders et al., 2016, p. 164).

Quantitative methods generally refer to the data analysis or data collection method that uses and/or generates numerical data (Saunders et al., 2016, p. 165). Positivism is generally associated with quantitative research, particularly when used with highly organised predetermined data collection techniques (Saunders et al., 2016, p. 166). The design of a survey methodology in a positivist study is to collect research data that is primary or secondary from a sample, the objective of which is to analyse the data statistically and generalise the results to the population (Collis & Hussey, 2009, p. 76). By using a survey strategy, it enables the collection of quantitative data which can be analysed quantitatively using inferential or descriptive statistics (Creswell, 2014, p. 155; Saunders et al., 2016, p. 182).

Qualitative methods refer to a data collection technique or data analysis process that uses or generates non-numerical data (Saunders et al., 2016, p. 165). An interpretive philosophy is

often associated with qualitative research. Sense needs to be made of the socially constructed and subjective meanings stated about the phenomenon being studied, thus as such, it is interpretative (Saunders et al., 2016, p. 168). Challenges for researchers who use an interpretative paradigm is to use a method that will retain the veracity of the data. Background information needs to be collected first, since qualitative data needs to be understood within the context (Collis & Hussey, 2009, p. 143). The most common data collection methods for qualitative studies are interviews, protocol analysis, repertory grid technique, diary methods, observations or focus groups (Collis & Hussey, 2009, pp. 144-155).

A combination of both qualitative and quantitative data collection techniques is used in a mixed methods research approach. The data collection techniques and analysis in mixed methods research use qualitative and quantitative data collection techniques, and analysis is either parallel or sequential but does not combine them. This means that qualitative data is analysed qualitatively, and quantitative data analysed quantitatively (Saunders et al., 2016, pp. 170-171).

As indicated in section 4.3.1 this study will follow a positivistic research philosophy. As positivistic research is associated with quantitative research, the methodological approach for this study will be quantitative research using a survey strategy to test the conceptual model.

#### 4.3.3 Time Horizons

The literature informs that there are two-time horizons that studies may follow. They are cross sectional or longitudinal (Babbie, 2010, pp. 106-107; Collis & Hussey, 2009, pp. 77-78; Saunders et al., 2016, p. 200; Sekaran & Bougie, 2010, p. 119). Cross sectional studies are conducted when resources are limited or there are time constraints. In cross sectional studies research data in different contexts, but over the same time, is obtained. Cross sectional data is collected once, over a short time span before the data is analysed and reported (Babbie, 2010, p. 106; Collis & Hussey, 2009, p. 77; Saunders et al., 2016, p. 200). Collis and Hussey (2009, p. 77) identify three problems with a cross sectional research strategy. First, selecting

a sample large enough to be representative of the population may be problematic. Second, it may be problematic to separate the phenomena under study from other factors that may influence the correlation. Third, cross sectional studies only indicate that correlation exists or does not exist, it fails to explain why a correlation does exist.

Longitudinal studies, in contrast to cross sectional studies, are designed to observe the same phenomena over an extended period of time (Babbie, 2010, p. 107; Collis & Hussey, 2009, p. 78; Saunders et al., 2016, p. 201). The aim of a longitudinal study is for the dynamics of the research problem to be examined over an extended time, by examining the same group of people or variable several times. The sample sizes for longitudinal studies are smaller, however once the study has started it must be continued. A problem that arises is that participants may be lost during the period of the study. Longitudinal studies are expensive and time consuming (Collis & Hussey, 2009, p. 78).

Time and budgetary constraints necessitated utilising a cross sectional study for the treatise.

#### 4.4 UNIT OF ANALYSIS

The unit of analysis is defined as what or who is under study, about which there is a collection of data and analysis. The unit of analysis is closely linked to the research questions and research problem (Babbie, 2010, pp. 98-99; Collis & Hussey, 2009, p. 115).

The unit of analysis for this study was the Port of Cape Town users.

#### 4.5 SAMPLING DESIGN

After the unit of analysis has been determined, the appropriate next step is to identify the targeted population of the study. A population is a body of people or objects precisely defined, under consideration for statistical purposes (Collis & Hussey, 2009, p. 62). It would be ideal if all people in the population are tested; however it is an impractical task to undertake due to the high costs and lengthy time frames associated with it and the difficulty to survey the entire population (Saunders et al., 2016, p. 274). The selection of a sample would be the most practical task to perform. A sample is defined by Collis and Hussey (2009, p. 62) as a

subset of the population. Sekaran and Bougie (2010, p. 266) explain that sampling is a method of collecting enough of the correct elements from the population, for the researcher to study the sample and understand its characteristics or properties to generalise such characteristics or properties to the entire population.

Available sampling techniques can be separated into two types, probability sampling and non-probability sampling (Babbie, 2010, p. 192; Saunders et al., 2016, p. 275). Wegner (2016, p. 161) describes non-probability-based sampling as a method where sample members are not selected randomly.

The method of non-probability sampling used for this study was a combination of convenience sampling and snowball sampling. Convenience sampling is when a sample is drawn to suit the researcher (Wegner, 2016, p. 161), which was appropriate due to time constraints of the study, as well as the operational access to targeted respondents working in a high-paced business environment. A snowball sampling method was also used, where the respondents were asked to forward the questionnaire to their networks to complete, with the objective being to increase the response rate to the questionnaire (Babbie, 2010, p. 193; Wegner, 2016).

# 4.6 TECHNIQUES AND PROCEDURES

### 4.6.1 Data Collection Methods

There are a vast number of methods to collecting and analysing research data, and it is important therefore to choose those that meet the philosophical assumption of the research paradigm.

Two types of research data exist, primary and secondary data (Collis & Hussey, 2009, p. 73). Primary data are produced from an original source such as a questionnaire survey, own experiments, focus groups or interviews. Secondary data is data that has been obtained from an original source such as internal records, databases and publications, available on the internet or on hard copy (Collis & Hussey, 2009, p. 73).
Chapter 2 and Chapter 3 contain the secondary data that was collected for this study. The rest of this section will discuss the primary data collection method employed for this study. This study employed a questionnaire to investigate the dependent variable, Service Quality and the six independent variables. The distribution of the questionnaire was done by email by sending out the link to the questionnaire, housed on QuestionPro. A copy of the email that was sent out is attached as Annexure A: Copy of email sent to respondents. As feedback was poor, the questionnaire was then manually administered where 15 respondents were surveyed face to face at various locations in Cape Town.

#### 4.6.1.1 Questionnaire design

Within a survey strategy, one of the most widely used data collection methods is questionnaires. Questionnaires are an effective method to collect responses from a big sample before quantitative analysis is done, as each respondent is requested to respond to the same set of questions (Saunders et al., 2016, p. 439). Questionnaires are defined as preformulated sets of questions, to which responses are recorded by respondents, within closely defined alternatives. When using a questionnaire the researcher knows exactly what is required and knows how to measure the variables of interest, thus making questionnaires an efficient data collection instrument (Sekaran & Bougie, 2010, p. 197). Collis and Hussey (2009, p. 194) distinguish between two main problems when utilising questionnaires in a survey. First is questionnaire fatigue which is the reluctance of people to respond to questionnaires, as they are bombarded with unsolicited requests by email, post, on the street and telephone. Second is non-response bias, which is when questionnaires are not returned. Non-response bias is critical in a survey as the researcher will be generalising from the sample to the population. The data may not be representative of the population if all the responses from the sample are not collected.

The questionnaire for this study was made up of two parts. First, there was a cover letter indicating the purpose/aim of the study. The confidentiality of the respondents was assured in the cover letter, as well as providing the option to withdraw from the survey at any time they were not comfortable. The letter also explained that the data would only be reported in

aggregates. The respondent was also thanked for taking the time to complete the questionnaire.

Second was the questionnaire itself which was made up of three parts. Section A dealt with demographics. The information gathered in this section included gender, nature of the business where the respondent works, experience in years and nationality. This section made use of multiple-choice questions, from which the respondents could select their choice and one open ended question when advising nationality. These sections allowed the researcher to describe the sample under study.

Section B dealt with the perceptions of service quality at the Port of Cape Town and was operationalised from the literature reviewed in Chapter 2 and Chapter 3 and is illustrated in Table 4.1 below. Section B employed a five-point Likert scale. The scale was based on (1) "Strongly Agree", (2) "Agree", (3) "Uncertain", (4) "Disagree", and (5) "Strongly Disagree". The Likert scale was used for the variables Service Quality, Communication, Competence, Access, Reliability, Understanding/Knowing Customer and Tangibles. The questions in this section were randomised to minimise question order bias.

In Section C the respondents were requested to rank the six independent variables according to how important they were to them. The scale ranged from 1, the most important to 6, the least important. The questionnaire ended by again thanking the respondents for taking the time to complete the questionnaire. A copy of the questionnaire is attached as Annexure B: Questionnaire.

The operationalisation of Section B of the questionnaire is shown in Table 4.1 below.

Code	Question Statement	Source
Service Quality Dependant Variable		
SEV1	1.Overall, we are satisfied with the	(Thai, 2016)
	service quality of the port.	

SEV2	2. When a problem occurs, I get the	Adapted from (Pomirleanu et al., 2016,			
	port's full attention.	p. 140)			
SEV3	3. The port has my best interests at	(Zeithaml, Parasuraman, & Berry,			
	heart.	1990, p. 186)			
SEV4	5.Overall, I am satisfied with the	(Thai, 2016, p. 465)			
	management of the port.				
Commu	nication Independent Variable				
COM1	1.The port's employees always give	Own construct			
	timely information to the port users.				
COM2	2. The port tells you exactly when	Own construct			
	container operations on land will be				
	performed.				
COM3	3.The language used for the port's	Own construct			
	communication is easy to understand.				
COM4	4. The port uses a user-friendly medium	Own construct			
	to communicate with port users.				
COM5	5. The port communicates proactively	Own construct			
	about operational delays.				
COM6	6.The port's communication regarding	Own construct			
	container operations on land is always				
	accurate.				
Compet	ence Independent Variable				
CMP1	1. The port's employees perform their	(Zeithaml et al., 1990, p. 185)			
	container handling operations right the				
	first time.				
CMP2	2.The port's staff has the required	(Zeithaml et al., 1990, p. 186)			
	knowledge to perform their jobs.				
CMP3	3. The port's staff instills confidence in	(Zeithaml et al., 1990, p. 186)			
	the port users with its response to				
	enquiries.				
Access	Access Independent Variable				

ACC1	1.The port's truck gate operating hours	Adapted from (Zeithaml et al., 1990, p.
	are convenient.	186)
ACC2	2.Port users are always able to give the	Adapted from (Thai, 2016, p. 465)
	port feedback about its service levels.	
ACC3	3.The port's staff are always courteous	(Zeithaml et al., 1990, p. 186)
	to port users when the port experiences	
	congestion.	
ACC4	4. It is easy to reach appropriate staff by	Own Construct
	telephone.	
ACC5	5.Supervisors are easy to access when	Own construct
	enquiries need to be made.	
ACC6	6. The port is easily accessible by road.	Own construct
Reliabil	ty Independent Variable	
REL1	1.When the port promises to do	(Zeithaml et al., 1990, p. 185)
	something by a certain time, it does so.	
REL2	2.The port loads and off loads	Own construct
	containers to and from trucks with ease.	
REL3	The port's staff is never too busy to	(Zeithaml et al., 1990, p. 186)
	respond to enquiries.	
REL4	4.Port users feel safe in their	(Zeithaml et al., 1990, p. 186)
	operational transactions with the port.	
REL5	5.Container operations on land that the	(Thai, 2016, p. 465)
	port provides are conducted in a	
	reliable manner.	
REL6	The port always provides correct	Own construct
	container information.	
Underst	anding/ Knowing Customer Independe	nt Variable
UKC1	1.The port shows genuine concern	Adapted from (Zeithaml et al., 1990, p.
	about the port users' problems.	185)

UKC2	2.The port's staff understands the port	Adapted from (Zeithaml et al., 1990, p.
	users' need for fast loading and	186)
	offloading of containers onto trucks.	
UKC3	3.The port's staff gives individualised	Adapted from (Zeithaml et al., 1990, p.
	attention to port users.	186)
UKC4	4. The staff in the port always	(Thai, 2016, p. 465)
	demonstrates good knowledge of our	
	needs.	
Tangibl	es Independent Variable	
TAN1	1.The port's container handling	Adapted from (Zeithaml et al., 1990, p.
	equipment is always in good working	185)
	condition.	
TAN2	2.The facilities at the port are visually	Adapted from (Zeithaml et al., 1990, p.
	appealing.	185)
TAN3	3. Access roads leading to the port are	Own Construct
1		

Table 4.1: Operationalisation of Section B of the Questionnaire

# The operationalisation of Section C in the questionnaire is shown in table 4.2 below.

Code	Question Statement	Source
СОМ	Using language where port users can	(Verma, Boyer, & Boyer, 2010, p. 34)
	easily understand the different facts of	
	the service offered.	
CMP	The knowledge and skills the port staff	(Verma et al., 2010, p. 33)
	needs to perform the port's services.	
ACC	Approachability and ease of contacting	(Verma et al., 2010, p. 33)
	port staff and accessing the port.	
REL	The ability to provide what is promised,	Own Construct
	dependably and accurately.	
UKC	The ability to listen to the port user.	Own Construct

TAN	The physical appearance of the port	(Verma et al., 2010, p. 35)
	facilities and equipment.	

Table 4.2: Operationalisation of Section C of the Questionnaire

Next data analysis is discussed and the data analysis methods that were used in this study are articulated.

#### 4.6.2 Data Analysis

Data can be defined as what is more readily available from a variety of sources and of varying quality and quantity. Data consists of values that each convey a little bit of information that is useful and usable to management. When large number of data values are collected, data analysis tools are used to collate, summarise, analyse and present the data for managers to understand and make decisions. The presentation of this data is the role of statistics management. Statistics is thus a group of mathematical techniques and tools used to transform raw data into summary measures and other useful information that is used to support effective decision making (Wegner, 2016, p. 3).

This treatise is a quantitative study and the components of statics focused on in this study are descriptive and inferential statics. Wegner (2016, p. 7) defines descriptive statistics as the process that summarises data into a few descriptive measures and inferential statistics as the process that generalises the sample findings to the broader population.

The data collected was used to guide the choice of analysis techniques used. For exploratory data analysis, data is explored most commonly using tables and diagrams. These methods present the information gathered much faster and more vividly than a written report. Which diagrams and tables to use should be guided by the researcher's research questions and objectives (Saunders et al., 2016, p. 512; Wegner, 2016, p. 27).Below is a summary of some important data presentation by data type :

• To illustrate one variable for easy reading of specific values – Table, or frequency distribution, is used;

- To illustrate highest or lowest values for comparisons Charts, pictograms histograms are used;
- To illustrate the trend of a variable Line graph is used;
- To illustrate the proportions or occurrences or categories for one variable pie chart is used;
- To illustrate the distribution of values Box plot is used;
- To illustrate the relationship between two variables scatter graph, or scatter plot, is used (Saunders et al., 2016, p. 513).

Statistical methods are used to examine and describe the differences, relationships and trends of the data collected. As with exploratory data analysis, which statistical method to use in examining the differences, relationships and trends of data collected, is guided by the researcher's research questions and objectives (Saunders et al., 2016, pp. 532-533). Below is a summary of some of the important statistical tools to examine differences, relationships and trends of data:

- Test the association of two variables Chi Square is used;
- Test whether groups differ significantly T- test and analysis of variance (ANOVA) are used;
- To assess the strength of relationship between two variables Correlation and regression are used;
- To predict the value of a dependent variable from independent variables Regression analysis is used (Saunders et al., 2016, p. 534).

#### 4.6.3 Data Analysis and Techniques used for this Study

The data collected from the responses to the questionnaire was cleaned, codified, categorised and sorted and analysed by statistical packages.

The variables under study were analysed using the techniques listed in Table 4.3 below.

Stage	Analysis	ТооІ
Descriptive	Comparing values	Tables
	Proportions	Pie Chart
Inferential	Strength of association	Correlation

Table 4.3: Analysis techniques used in the study

#### 4.6.4 Reliability and Validity

Central to the judgements regarding the quality of research in the natural sciences and quantitative research in social sciences, are reliability and validity (Saunders et al., 2016, p. 202). Reliability refers to consistency and replication. If a researcher can replicate a research design and there is no difference in the results, the research is deemed to be reliable. Validity refers to the aptness of the research method used to reflect the phenomenon under study (Collis & Hussey, 2009, pp. 64-65; Saunders et al., 2016, p. 202).

The guarantee to reliability is not always easy, as there are a number of threats to relatability, as suggested by Saunders et al. (2016, p. 203), who firstly, pinpoint participation error. Participation error is any factor which may have an adverse influence on the way a participant performs. Secondly is participation bias, which includes factors that induce a false response from the participant. Thirdly is when the researcher's interpretation is alerted by any factor. Last is researcher bias, when the researcher's recording of the respondents is influenced by any factor.

Collis and Hussey (2009, pp. 204-206) highlight three ways of estimating reliability:

 Test retest method – on two separate occasions the same questions are asked of the same sample. The responses obtained from the two occasions are correlated and the correlation coefficient is calculated. If the two sets of results produce a positive correlation, the findings are deemed reliable. The test retest method has disadvantages. When administrating the test for the second time, it is firstly difficult to convince the sample to participate again and secondly, on the second occasion the sample may spend more time thinking and provide different answers;

- Split in half method the recorded sheets from the questionnaires are divided into two equal halves. The two halves are then correlated, and the correlation coefficient is calculated. For a split in half method the Cronbach Alpha test is considered the most relevant. Cronbach Alpha is a measurement of internal consistency and is expressed on a scale from 0 to 1. A Cronbach Alpha of 0.70 is the minimum requirement for good reliability, and an alpha of 0.50 is acceptable for basic or exploratory research (Nunnally, 1978, p. 245). Zikmund et al. (2010, p. 306) suggest that an alpha between 0.60 and 0.70 is fair reliability and if it is below 0.60 it is poor reliability, thus the cut off for fair reliability is 0.60.
- Internal consistency method is a popular method for computing reliability of results where questions are used as the method of data collection. " Every item is correlated with every other item across the sample and the average inter-item correlation is taken as the index of reliability" (Collis & Hussey, 2009, p. 206).

Determining the validity of results is as important as determining the reliability of results. As mentioned above, validity refers to the aptness of the research method used to reflect the phenomenon under study (Collis & Hussey, 2009, pp. 64-65; Saunders et al., 2016, p. 202). Validity of research can be assessed in various ways:

- Face Validity –is when the researcher must ensure that the measures or tests used represent or measure what they are supposed to represent or measure (Babbie, 2010, pp. 151-152; Collis & Hussey, 2009, p. 65);
- Construct Validity –relates to phenomena not directly observable such as satisfaction, ambition, anxiety and motivation. They are identified as hypothetical constructs which are assumed to exist as factors that explain observable phenomena (Babbie, 2010, pp. 151-152; Collis & Hussey, 2009, p. 65);
- Criterion-Related Validity –is also referred to predictive validity. It is the extent to which the measurement relates to an external criterion (Babbie, 2010, p. 154);
- Content validity It is the extent to which the measurement covers the variety of meanings in a concept (Babbie, 2010, p. 155).

The questionnaire for this study was validated by operationalising the questions from the literature and using validated questions from previous studies and literature. These are illustrated in Table 4.1 and Table 4.2 above. In addition, a subject matter expert as well as the research supervisor at the Nelson Mandela Business School, was consulted, and necessary changes were made to the questionnaire. Based on this, face validity, construct validity and criterion related validity were adhered to.

## 4.7 ETHICS

As noted in Chapter 1, Doyle et al. (2010, p. 49) suggest a fundamental cornerstone of research ethics is informed consent. Appropriate measures must be taken by the researcher to explain clearly and comprehensively the objectives and implications to potential participants. With this information the potential participants can make an informed decision about whether to participate and contribute to the study voluntarily. Saunders and Lewis (2012, pp. 74-75) define ethics as behavioural standards that steer the moral choices people take, which govern the relationships and behaviour with others. According to Saunders et al. (2016, pp. 239-240), ethics in the framework of research refers to the appropriateness of the researcher's behaviour in relation to the rights of those who become the subjects of the researcher's work, or who are affected by it. Research ethics relates to the questions of how researchers formulate and clarify research topics, collect data, design their research and gain access, process and store data, analyse data and in a responsible and moral way, write up their research findings.

Saunders and Lewis (2012, p. 75) suggest the following principals as important ethical standards when involving humans:

- Research should benefit participants, not harm them;
- The researcher should send clearly communicated information in advance to potential participants;
- Participants should not be pressured to participate and should be free from coercion;
- Before participating, participants in a research study have the right to their informed consent;

- Where research may affect third parties, informed consent must be obtained from the affected parties;
- Researchers must actively seek consent from participants who are vulnerable (example children), or from their representatives;
- Central to the relationship between researcher, institutional representatives and participants should be honesty;
- Confidentiality and anonymity of participants should be maintained.

The study was conducted by heeding the ethical considerations mentioned above. The study was completely voluntary. Ethical conduct was ensured for the study by guaranteeing that participants' privacy will be protected and by ensuring confidentiality and anonymity. The Nelson Mandela University research committee's ethical policy was adhered to when the research was carried out. The criteria needed for full ethical clearance was not necessary for this research, therefore ethical clearance form E sufficed. A signed form E is attached as Annexure C: Ethics Clearance Form E.

## 4.8 SUMMARY

This chapter started by providing a very brief review of Chapter 2 and Chapter 3.

The chapter then goes on to provide a definition of research and describes the research process that was followed for the study; namely an onion analogy, where the layers of the onion depict the general sequence of the research process with data analysis at its core. The rest of the chapter then goes into detail of each layer of the onion. The chapter is concluded with a section on ethics, where principles considered as important ethical standards when dealing with humans when research is conducted, are listed.

The chapter that follows, Chapter 5 will be dealing with the results and analysis of the responses to the questionnaire.

# **CHAPTER 5: RESULTS AND ANALYSIS**

## 5.1 INTRODUCTION

In Chapter 4, the research methodology and design that were used in this study, were outlined. This chapter presents the empirical data collected and the subsequent analysis and interpretation of the findings.

Firstly, there is a presentation of the demographic data with the results of Section A of the questionnaire. This section provides the reader with the questionnaire statistics which detail how many people viewed, started and completed the questionnaire. This is followed by an analysis of the gender of respondents, the respondent's nationality, the nature of the business the respondents work in and an analysis of the respondent's industry experience.

Secondly, there is a presentation and interpretation of the results from Section B of the questionnaire that examines the dependent variable, Service Quality and the six independent variables; namely Communication, Competence, Access, Reliability, Understanding/Knowing Customer and Tangibles. Section B of the questionnaire was designed to determine the respondent's perceptions of service quality at the Port of Cape Town.

Thirdly is the presentation and interpretation of the results of Section C of the questionnaire. This section of the questionnaire was designed to determine the importance of the service quality features to the respondents.

Fourthly the chapter discusses reliability of the questionnaire, where the Cronbach Alpha is presented and discussed. Next, the validity of the questionnaire is discussed. Lastly, inferential statistics is discussed with the presentation and discussion of the Pearson's Correlation formulated from data of the survey.

Figure 5.1 illustrates the outline of Chapter 5.



Figure 5.1: Chapter 5 Outline Source: (Author's own construction)

# 5.2 SURVEY STATISCS

Table 5.1 below provides an overview of how many people viewed, started and completed the questionnaire.

	Frequency count	Completed / Started	Completed / Viewed
Completed	52	60,47%	40,94%
Started	86		
Viewed	127		

Table 5.1: Distribution questionnaire completion

One hundred and twenty-seven people viewed the questionnaire, eighty-six people started the questionnaire and fifty-two people completed the questionnaire. The started-to-completed ratio is 60.47%. It is therefore concluded that the response rate to the questionnaire is 60.47%. Possible reasons for the low response rate may be attributed to survey fatigue and respondents not having the time to complete the survey due to the time pressures associated with the industry in which they work.

## **5.3 DEMOGRAPHIC INFORMATION**

#### 5.3.1 Gender

The gender of the respondents is illustrated in figure 5.2.



Figure 5.2: Frequency distribution Gender (n=52)

Most of the respondents, 73%, were male versus 27% being female. This indicates that the majority of the current Cape Town Port users targeted in this sample are male. This may therefore result in the report having a potential for gender bias.

#### 5.3.2 Nationality

Table 5.2 illustrates the nationalities of the respondents.

Nationality	Frequency	Percentage
South African	47	90,38%
Malawian	1	1,92%
Zimbabwean	4	7,70%
Total	52	100%

Table 5.2: Nationality of respondents

Most of the respondents (90.38%) were South African, followed by Zimbabweans (7.70%) and Malawians (1.92%). It can therefore be concluded that the majority of the Cape Town Port users targeted in the sample are South African.

#### 5.3.3 Nature of the business respondents work in

Table 5.3 illustrates the nature of the business the respondents work in.

Industry	Frequency	Percentage
Truck container transporter	29	55,77%
Rail container transporter	5	9,62%
Clearing and Forwarding	5	9,62%
Exporter	5	9,62%
Importer	3	5,77%
Container Shipping Line	3	5,77%
Other	2	3,85%
Total	52	100%

Table 5.3: Nature of respondent's business

Most of the respondents (55,77%) work in the container truck sector, followed by Rail container transport, Clearing and Forwarding and Exporters (9,62% each). They were followed by Importers and Container shipping lines (5,77% each). The final sector was classed as 'Other' where respondents could state which business sector they were in if not listed on the questionnaire. Container Depot and Freight forwarder were indicated as the industries in Other and the sector made up 3,85% of the respondents.

#### 5.3.4 Industry Experience

Table 5.4 illustrates the respondents' work experience.

Duration	Frequency	Percentage
Less than a Year	1	1,92%
Between 1-5 years	11	21,15%
Between 6-10 years	16	30,77%
Between 11-15 years	13	25,00%
More than 16 years	11	21,15%
Total	52	100%

Table 5.4: Industry Experience

A significant group of the respondents (30,77%) have worked between 6-10 years in their industry. This was followed by respondents working between 11-15 years (25%). Respondents working between 1-5 years and more than 16 years made up 21,15% each, with 1,92% of the respondents working for less than a year. An interesting observation is that more than half of the respondents who participated in the survey, had work experience greater than six years and therefore it can be concluded that the respondents had enough experience to contribute to the study.

## 5.4 ITEMS MEASURED

Section 5.4 deals with the section of the questionnaire where the respondents' perceptions of service quality at the Port of Cape Town is established.

## 5.4.1 Service Quality – Dependent Variable

In Table 5.5 below a summary of the four statements related to the respondent's perceptions to service quality at the Port of Cape Town are Illustrated.

Code	Question/Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
SEV1	Overall, we are satisfied with the	0	10	12	24	6
	service quality of the port	(0%)	(19,2%)	(23,1%)	(46,2%)	(11,5%)
SEV2	When a problem occurs, I get the	0	8	15	25	4
	port's full attention	(0%)	(15,4%)	(28,8%)	(48,1%)	(7,7%)
SEV3	The port has my best interests at	0	5	21	22	4
	heart	(0%)	(9,6%)	(40,4%)	(42,3%)	(7,7%)
SEV4	Overall, I am satisfied with the	0	9	15	23	5
	management of the port	(0%)	(17,3%)	(28,8%)	(44,2%)	(9,6%)

Table 5.5: Frequency distribution: Dependent Variable: Service Quality Perception

In Table 5.5 the results show that most of the respondents disagree (57.7%) that overall, they are satisfied with the service quality of the port (SEV1), with 11,5% strongly disagreeing and 46,2% disagreeing; while 23,1% were neutral, with 19,2% agreeing that overall, they are satisfied with the service quality of the port. Almost half of the respondents (48,1%) disagree that when a problem occurs, they do not get the port's full attention (SEV2), with 7,7% strongly disagreeing. There were 28,8% of respondents who were neutral with 15,4% agreeing that when a problem occurs, they do get the port's full attention. Half of the respondents do not agree that the port has their best interest at heart (SEV3), with 42,3% who disagree and 7,7% who strongly disagree, while 40,4% were neutral. Only a small group of respondents (9,6%) agree that the port has their best interest at heart (SEV3). With the statement, 'Overall, I am satisfied with the management of the port' (SEV4) 44,2% of respondents disagreed, with 9,6% strongly disagreeing. Respondents who were neutral to the statement were 28,8%, with 17,3% agreeing with the statement.

Based on the responses, it is interesting to note that for all the statements, more respondents disagreed with them. The implication is that the respondents show dissatisfaction in their perception of service quality at the Port of Cape Town. Dissatisfaction with service quality as indicated in the literature in section 2.5.2, will not result in the development of commitment, trust and satisfaction in the port, which is a desired outcome of service quality.

#### 5.4.2 Communication – Independent Variable

This section of the questionnaire was designed to determine what the impact of communication is on service quality. Table 5.6 below summarises the responses to the six statements related to communication.

Code	Question/Statement	trongly gree	gree	eutral	isagree	trongly isagree
COM1	The part employees always give	Ă SI	Ă	<b>Ž</b>		, Si
CONT	The port employees always give		5		22	3
	timely information to the port users	(1,9%)	(9,6%)	(40,4%)	(42,3%)	(5,8%)
COM2	The port tells you exactly when	0	23	14	14	1
	container operations on land will	(0%)	(44,2%)	(26,9%)	(26,9%)	(1,9%)
	be performed					
COM3	The language used for the port's	5	36	8	2	1
	communication is easy to	(9,6%)	(69,2%)	(15,4%)	(3,8%)	(1,9%)
	understand					
COM4	The port uses an easy medium to	10	23	10	8	1
	communicate with port users	(19,2%)	(44,2%)	(19,2%)	(15,4%)	(1.9%)
COM5	The port communicates	1	14	13	19	5
	proactively about operational	(1,9%)	(26,9%)	(25,0%)	(36,5%)	(9,6%)
	delays					
COM6	The port's communication regarding	2	17	12	19	2
	container operations on land is	(3,8%)	(32,7%)	(23,1%)	(36,5%)	(3,8%)
	always accurate					

Table 5.6: Frequency distribution: Independent Variable: Communication

Almost half of the respondents (48,1%) disagreed that the port's employees provide timely information to port users (COM1) (42,3% disagree and 5,8% strongly disagree). There were 40,4% of respondents who were neutral, with 9,6% agreeing that the port does provide timely information to port users and 1,9% strongly agreeing. More respondents agreed the port tells you exactly when container operations on land will be performed (COM2) (44,2%), with 26,9% neutral, 26,9% disagreeing and 1,9% in total disagreement. Most of the respondents (78,8%) agreed that the language used for the port's communication is easy to understand (COM3) (69,2% agree and 9,6% strongly agree). Most of the respondents (78,8%) also agree that the port uses an easy medium for communication with port users (COM4) (44,2% agree and 19,2% strongly agree). More respondents (46,1%) disagreed with the statement that the port communicated proactively about operational delays (COM5) (36,5% disagree and 9,6% strongly disagree). A quarter (25,0%) of the respondents were neutral, with 26,9% agreeing and 1,9% strongly agreeing with the same statement. More respondents (40,3%) disagreed that the port's communication regarding the container operations on land is always accurate (COM6) (36,5% disagree and 3,8% strongly disagree). The were 23,1% of respondents who were neutral, while 32,7% agreed that the port's communication on land is always accurate and 3,8% strongly agreed.

The three statements that respondents disagreed on relate to communication being timely (COM1), proactive (COM5) and accurate regarding container operations on land (COM6). These factors need attention as they not only cause frustration for port users but also impact their ability to effectively plan their operations when information sharing is not timely, proactive and accurate. This point is supported by the literature as highlighted in Section 3.3.1.2.

#### 5.4.3 Competence – Independent Variable

This section of the questionnaire aimed to determine whether the respondents felt that the port and its staff were competent. Table 5.7 below summarises the respondents' responses to the three statements that relate to competence.

Code	Question Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
CMP1	The port's employees perform	1	17	21	12	1
	their container handling	(1,9%)	(32,7%)	(40,4%)	(23,1%)	(1,9%)
	operations right the first time					
CMP2	The port's staff has the required	1	28	11	8	4
	knowledge to perform their jobs	(1,9%)	(53,8%)	(21,2%)	(15,4%)	(7,7%)
CMP3	The port's staff instills confidence in	0	6	20	21	5
	the port users with its response time	(0%)	(11,5%)	(38,5%)	(40,4%)	(9,6%)
	to enquiries					

Table 5.7: Frequency distribution: Independent Variable: Competence

More respondents (40,4%) were neutral that the port's employees perform their container handling operations right the first time (CMP1), with 32,7% agreeing and 1,9% strongly agreeing. There were 23,1% who disagreed that the port's employees perform their container handling operations right the first time, with 1,9% strongly disagreeing. Most of the respondents (55,7%) were in agreement that the port's staff has the required knowledge to perform their jobs (CMP2) (53,8% agree and 1,9% strongly agree), while half (50%) of the respondents disagreed that the port's staff instill confidence in the port users with its response time to enquiries (CMP3) (40,4% disagree and 9,6% strongly disagree), with 38,5% being neutral and 11,5% agreeing that the port's staff instils confidence in the port users with its response time to enquiries.

The findings indicate that the port needs to focus its attentions on performing its container handling operations right the first time, as 40,4% of the port users' perceptions of their performance is neutral or undecided. Failure to improve may worsen the perceptions of this statement. Similarly, with 38,5% of respondents being neutral to whether the port staff instills confidence in the port users with its response time to enquiries, failure to improve this aspect may further worsen the port users' confidence in the port's staff.

## 5.4.4 Access – Independent Variable

This section of the questionnaire aimed to determine the respondent's perceptions about access to the port and its staff. Table 5.8 below summarises the responses to the six items that relate to access.

Code	Question Statement					
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
ACC1	The port's truck gate operating	1	23	5	10	13
	hours are convenient	(1,9%)	(44,2%)	(9,6%)	(19,2%)	(25,0%)
ACC2	Port users are always able to give	0	10	22	15	5
	feedback to the port	(0%)	(19,2%)	(42,3%)	(28,8%)	(9,6%)
ACC3	The port's staff is always	0	3	21	24	4
	courteous to port users when the	(0%)	(5,8%)	(40,4%)	(46,2%)	(7,7%)
	port experiences congestion					
ACC4	It is easy to reach appropriate staff	0	10	19	18	5
	by telephone	(0%)	(19,2%)	(36,5%)	(34,6%)	(9,6%)
ACC5	Supervisors are easy to access	1	13	15	17	6
	when enquiries need to be made	(1,9%)	(25,0%)	(28,8%)	(32,7%)	(11,5%)
ACC6	The port is easily accessible by road	6	33	8	3	2
		(11,5%)	(63,5%)	(15,4%)	(5,8%)	(3,8%)

 Table 5.8: Frequency distribution: Independent Variable: Access

More respondents (46,1%) agreed that the port's gate operating hours are convenient (ACC1) (44,2% agree and 1,9% strongly agree), 9,6% were neutral, 19,2% disagreed and 25,0% strongly disagreed. There were 42,3% of respondents who were neutral to whether port users are always able to give feedback to the port (ACC2); however, 28,8% disagreed and 9,6% strongly disagreed, with only 19,2% agreeing that the port users are always able to give feedback to the respondents (53,9%) disagreed that the port's staff is always courteous to port users when the port experiences congestion (ACC3) (46,2% disagree and 7,7% strongly disagreeing), 40,4% were neutral, while 5,8% agreed that the

port's staff is courteous to port users when the port experiences congestion. More respondents (36,5%) were neutral about whether it is easy to reach appropriate staff by telephone (ACC4), while 34,6% disagreed and 9,6% strongly disagreed. There were, however, 19,2% of respondents who agreed that it is easy to reach appropriate staff by telephone. More respondents (44,2%) disagreed that supervisors are easy to access when enquiries need to be made (ACC5) (32,7% disagree, and 11,5% strongly disagree), while 28,8% were neutral with 25,0% agreeing and 1.9% strongly agreeing. The majority of the respondents (75,0%) agreed that the port was easily accessible by road (ACC6) (63,5% agree and 11,5% strongly agree).

The results show that while accessibility to the port itself is not a problem, gaining access to the port's staff members is a cause for concern. The port should allow their port users a platform to provide feedback to the port. One respondent to which the survey was administered face to face, commented that at times he feels like an object, being pushed around with nobody listening to his concerns. Another focus area is staff being courteous at times when the port is congested, with 40,4% of the sample being neutral or undecided, thus failure to improve on this aspect may result in it worsening, which may make staff members appear even less accessible. Improving the accessibility to supervisors also needs attention, as, of the 15 respondents to which the survey was administered face to face, all commented to their frustrations of not getting hold of a supervisor either by telephone or as a driver, when they were in the port to raise queries. Failure to address this will further enhance the perception that the staff at the port are not accessible.

#### 5.4.5 Reliability – Independent Variable

This section of the questionnaire aimed to determine the respondents' perceptions about reliability at the Port of Cape Town. Table 5.9 below summarises the responses to the six statements that relate to reliability.

Code	Question Statement					
		ngly e	a	tral	gree	ngly gree
		Stro Agr€	Agre	Neut	Disa	Stro Disa
REL1	When the port promises to do	0	3	21	24	4
	something by a certain time it	(0%)	(5,8%)	(40,4%)	(46,2%)	(7,7%)
	does so					
REL2	The port loads and off loads	2	16	16	12	6
	containers to and from trucks with	(3,8%)	(30,8%)	(30,8%)	(23,1%)	(11,5%)
	ease					
REL3	The port's staff is never too busy	1	7	12	23	9
	to respond to enquiries	(1,9%)	(13,5%)	(23,1%)	(44,2%)	(17,3%)
REL4	Port users feel safe in their	0	34	11	6	1
	operational transactions with the	(0%)	(65,4%)	(21,2%)	(11,5%)	(1,9%)
	port					
REL5	Container operations on land that	1	20	11	18	2
	the port provides are conducted in	(1,9%)	(38,5%)	(21,2%)	(34,6%)	(3,8%)
	a reliable manner					
REL6	The port always provides correct	5	30	11	6	0
	container information always	(9,6%)	(57,7%)	(21,2%)	(11,5%)	(0%)

Table 5.9: Frequency distribution: Independent Variable: Reliability

Most of the respondents (53,9%) disagreed that when the port promises to do something by a certain time it does so (REL1) (46,2% disagree and 7,7% strongly disagree), moreover, 40,4% were neutral and 5,8% of respondents agreed with the statement. There were 30,8% of respondents that were neutral and 30,8% agreed that the port loads and off loads containers to and from trucks with ease (REL2), with 3,8% strongly agreeing, while 23,1% of respondents disagreed and 11,5% strongly disagreed. Meanwhile, most of the respondents (61,5%) disagreed that the port staff is never too busy to respond to enquiries (REL3) (44,2% disagree and 17,3% strongly disagree), while most of the respondents (65,4%) agreed that they feel safe in their operational transactions with the port (REL4). More respondents (40,4%) agreed that container operations on land that the port provides, are managed in a

reliable manner (REL5) (38,5% agree and 1,9% strongly agree), however 34,6% disagreed, 3,8% strongly disagreed and 21,2% were neutral. Furthermore, most of the respondents (67,3%) agreed that the port always provides correct container information (57,7% agree and 9,6% strongly agree).

Three respondents to whom the survey was administered face to face, highlighted an appropriate example of the port promising to do something by a certain time and not doing it. This related to the port allowing for union feedback to staff during a certain time, at which time the port would be closed. All three of the respondents complained that the port did not reopen at the time they advertised they would after the meetings. With 40,4% of respondents being neutral or undecided on this statement, failure to improve this aspect could further impact the respondent's perception of the port's reliability negatively. The impact on the port users, because of the port not opening when saying they would open after these meetings, is that the port users' service to their customers is impacted as they are unable to deliver the containers, they have promised at the time they promised.

It is interesting to note, for REL2 and REL5, how divided the respondents were with no definitive proportion of the respondents agreeing or disagreeing with the statements. Both statements relate to container operations on the land, thus the port needs to improve on the activities related to these statements to improve customers' overall perception of reliability.

One of the fifteen respondents to whom the survey was administered face to face commented that because of the port not being consistent with the ease of loading and offloading containers onto his trailers, he has experienced damage to his twist locks which does not only affect him financially for repairs but also, affects his service to his customers as he is unable to use his trailer until his twist locks are repaired.

#### 5.4.6 Understanding/Knowing Customer – Independent Variable

This section of the questionnaire aimed to determine the respondent's perceptions of whether the port understands or knows the port users' needs and requirements. Table 5.10 below summarises the respondent's responses to the four statements that relate to understand/knowing customer.

Code	Question Statement	~			e	≥ e
		Strongl Agree	Agree	Neutral	Disagre	Strongl Disagre
UKC1	The port shows genuine concern	0	9	16	23	4
	about the port users' problems	(0%)	(17,3%)	(30,8%)	(44,2%)	(7,7%)
UKC2	The port's staff understands the	0	9	11	22	10
	port users' need for fast loading	(0%)	(17,3%)	(21,2%)	(42,3%)	(19,2%)
	and offloading of containers onto					
	trucks					
UKC3	The port staff gives individual	1	5	14	30	2
	attention to port users	(1,9%)	(9,6%)	(26,9%)	(57,7%)	(3,8%)
UKC4	The staff in the port always	3	5	17	23	4
	demonstrates good knowledge of our	(5,8%)	(9,6%)	(32,7%)	(44,2%)	(7,7%)
	needs					

Table 5.10: Frequency distribution: Independent Variable: Understanding/Knowing Customer

Most of the respondents (51,9%) disagreed that the port shows genuine concern about the port users' problems (UKC1) (44,2% disagree and 7,7% strongly disagree), 30,8% were neutral and 17,3% agreed. Most of the respondents (61,5%) disagreed that the port's staff understands the port users' needs for fast loading and offloading of containers onto trucks (UKC2) (42,3% disagree and 19,2% strongly disagree), while most of the respondents (61,3%) also disagreed that the port's staff gives individual attention to port users (UKC3) (57,7% disagree and 3,8% strongly disagree). More respondents (51,9%) indicated that they disagreed that the staff in the port always demonstrates good knowledge of their needs (UKC4) (44,2% disagree and 7,7 strongly disagree), however 32,7% were neutral, 9,6% agreed and 5,8% strongly agreed.

It is interesting to note that many respondents disagreed with all the statements, indicating that the respondents' perceptions of the port, is that the port does not understand or know the port users' needs and requirements. This was emphasised by a respondent to whom the survey was administered face to face. The respondent indicated that during times of huge delays at the port, being a truck driver stuck at or in the port for very long time, there are no ablution facilities that can be used, nor are their facilities to purchase food. An implication of the port not understanding or knowing the port users' needs, as indicated by one of the clearing forwarding agents who formed part of the pilot test prior to the questionnaire being administered, was that the use of alternative ports would be investigated for cargo that is destined for the hinterland, as the port does not understand the consequences of not knowing or understanding customers' needs.

#### 5.4.7 Tangibles – Independent Variable

This section of the questionnaire aimed to determine, the respondents' perceptions of the tangibles at the Port of Cape Town. Table 5.11 below summarises the responses to the three statements that relate to tangibles.

Code	Question Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
TAN1	The port's container handling	0	7	13	15	17
	equipment is always in good	(0%)	(13,5%)	(25,0%)	(28,8%)	(32,7%)
	working condition					
TAN2	The facilities at the port are	1	14	21	12	4
	visually appealing	(1,9%)	(26,9%)	(40,4%)	(23,1%)	(7,7%)
TAN3	Access roads leading to the port are	1	8	11	21	11
	in a good condition	(1,9%)	(15,4%)	(21,2%)	(40,4%)	(21,2%)

Table 5.11: Frequency distribution: Independent Variable: Tangibles

Most of the respondents (61,5%) disagreed that the port's container handling equipment is always in good working condition (TAN1) (28,8% disagree and 32,7% strongly disagree).

Many respondents (40,4%) were neutral about the facilities at the port being visually appealing (TAN2), while 26,9% agreed that these were visually appealing and 1,9% strongly agreed, however 23,1% disagreed and 7,7% strongly disagreed that the facilities were appealing. Most respondents (61.6%) disagreed that access roads leading to the port are in a good condition (TAN3) (40,4% disagree and 21,2% strongly disagree), while 21,2% were neutral with 15,4% agreeing and 1,9% strongly agreeing.

A port whose handling equipment is not in proper working condition is susceptible to congestion. This is supported by the literature in section 3.3.1. By not improving on this aspect the port users' perceptions that the service quality at the port is not satisfactory, is not likely to improve.

## 5.5 SERVICE QUALITY FEATURES

The purpose of this section of the questionnaire was for the respondents to rank the six service quality features (IV) according to their importance to the respondents. Table 5.12 below summarises the responses to the ranking of the service quality features.

CODE	Service Quality Feature	Aost mportant	airly mportant	mportant	lightly mportant	.east mportant
СОМ	Communication – Using	28	13	8	3 3	0
	language where port users can	(53,8%)	(25,0%)	(15,4%)	(5,8%)	(0%)
	easily understand the different					
	facts of the service offered					
CMP	Competence – The knowledge	19%	16	13	4	0
	and skills the port staff needs to	(36,5%)	(30,8%)	(25,0%)	(7,7%)	(0%)
	perform the port's services					
ACC	Access – Approachability and	30	17	3	2	0
	ease of contacting port staff	(57,7%)	(32,7%)	(5,8%)	(3,8%)	(0%)
	and accessing the port					

REL	Reliability - The ability to	28	8	14	2	0
	provide what is promised,	(53,8%)	(15,4%)	(26,9%)	(3,8%)	(0%)
	dependably and accurately					
UKC	Understanding/	21	4	13	10	4
	Knowing the customer – The	(40,4%)	(7,7%)	(25,0%)	(19,2%	(7,7%)
	ability to listen to the port user				)	
TAN	Tangibles-The physical	27	6	10	4	5
	appearance of the port facilities	(51,9%)	(11,5%)	(19,2%)	(7,7%)	(9,6%)
	and equipment					

Table 5.12: Frequency distribution: Service Quality Features

Each Service Quality feature was considered most important by the respondents as each feature had the highest percentage for 'most important' when ranked by the respondents. Access (ACC) was ranked the highest with 57,7%, followed by Communication (COM) and Reliability (REL) with 53,8% each, and they were followed by Tangibles (TAN) with 51,9%, Understanding/Knowing the port user (UKC) with 40,4% and Competence (CMP) with 36,5%.

## 5.6 RELIABILITY

#### 5.6.1 Factors that were deleted

No factors were omitted as the factors that were included did not result in unacceptable Cronbach Alpha values.

#### 5.6.2 Cronbach Alpha Analysis

Table 5.13 below illustrates the Cronbach Alpha coefficients for the factors.

Factor	Alpha	n*		
DV: Service Quality	0,76	52		
IV: Communication	0,66	52		
IV: Competence	0,58	52		
IV: Access	0,65	52		
IV: Reliability	0,67	52		
IV: Tangibles	0,56	52		
IV: Understanding/Knowing Customer	0,85	52		
* Number of complete cases used for calculation of alpha				

Table 5.13: Cronbach's alpha coefficients for the factors

Table 5.14 Illustrates interpretation for Cronbach's Alpha.

Unacceptable	<0,50
Acceptable	0,50 - 0,69
Good	0,70 - 0,79
Excellent	0,80+

Table 5.14: Interpretation intervals for Cronbach's alphas

From the data in Table 5.13 it can be interpreted that the DV - Service Quality and IV - Understanding/Knowing Customer meet the minimum requirements of 0,70 required for good reliability (Nunnally, 1978, p. 245). Furthermore, IV - Communication, Access and Reliability are considered as having fair reliability as the alpha is between 0,60 and 0,70 (Zikmund et al., 2010, p. 306). Conversely, IV - Competence and Tangibility are considered poor but acceptable for basic and exploratory research as the alpha is above 0,5 (Nunnally, 1978, p. 245).

## 5.7 VALIDITY

A subject matter expert, as well as the research supervisor at the Nelson Mandela Business School, was consulted to evaluate the questionnaire as a pilot test. Through consultation all necessary modifications and exclusions were made to ensure the questions are valid and would support the research objectives. Additionally, six people, one from each of the business sectors which would form part of the sample, were asked to complete the questionnaire prior to the main research being done. This was done to test the understanding of the questions and to rephrase any of the questions that were not clearly defined, or which may have been ambiguous. Feedback received was that all the respondents understood what was asked and what the requirements of the questions were.

## 5.8 INFERENTIAL STATISTICS

This section deals with the inferential statistics that were generated to test the hypotheses suggested for the variables.

#### 5.8.1 Pearson's Correlation

A Pearson product moment correlation coefficient (or r) is used to measure the strength of the relationship between two variables (Collis & Hussey, 2009, p. 272).

The interpretation of the Pearson product moment correlation is shown in Table 5.15.

r = 0	No linear relationship
r > 0,30	A weak uphill (positive) linear relationship
r > 0,50	A moderate uphill (positive) relationship
r > 0,70	A strong uphill (positive) linear relationship
r = 1	A perfect uphill (positive) linear relationship

Table 5.15: Pearson product moment correlation interpretation

The correlation between Service Quality (Dependent Variable) and the Independent Variables are presented in Table 5.16 below.

Independent Variable	Correlation
Communication	0,941
Competence	0,842
Access	0,843
Reliability	0,893
Understanding/Knowing Customer	0,933
Tangibles	0,601

Table 5.16: Pearson product moment correlation between Service quality and Independent Variables

Table 5.16 shows that service quality is positively correlated (r>0,30) with all the independent variables.

Table 5.17 below illustrates the correlations between the independent variables.

	IV1	IV2	IV3	IV4	IV5	IV6
IV1: Communication	-	0,901	0,906	0,949	0,977	0,620
IV2: Competence	0,901	-	0,991	0,973	0,848	0,783
IV3: Access	0,906	0,991	-	0,981	0,844	0,789
IV4: Reliability	0,949	0,973	0,981	-	0,888	0,766
IV5: Understanding/Knowing	0,977	0,848	0,844	0,888	-	0,541
Customer						
IV6: Tangibles	0,620	0,783	0,789	0,766	0,841	-

Table 5.17: Pearson product moment correlation for the independent variables

An analysis of Table 5.17 indicates that all the independent variables had a positive correlation with each other. The strength of the correlation ranged from high positive correlation to very high positive correlation for most of the variables. There were exceptions with IV5: Understanding/ Knowing Customer, IV:6: Tangibles and IV1: Communication having a medium positive correlation.

## 5.9 SUMMARY

The primary objective of this chapter was to analyse the data and to explain the findings. The demographic information collected from the 52 respondents of the questionnaire was illustrated, analysed and discussed. An interesting finding was that most of the respondents were males and South African. The responses to the dependent and independent variables were also illustrated, analysed and explained as well as the section on service quality features.

The reliability of the questionnaire was tested by means of a Cronbach Alpha analysis, which was conducted and considered acceptable as the lowest alpha was 0,56.

Validity was achieved by consulting a subject matter expert as well as the research supervisor at the Nelson Mandela Business School, to evaluate the questionnaire which formed a pilot test. This test was done together with administering the questionnaire to six people, one from each of the business sectors which would form part of the sample prior to the main research being done. This ensured that face validity, construct validity and criterion related validity were adhered to.

Through a Pearson product moment correlation, statistical relationships between the independent variables and dependent variables were explored.

A brief synopsis, based on the findings discussed in this chapter, highlights that there is dissatisfaction with the overall level of service quality at the Port of Cape Town amongst its users. Proactive and timely communication were highlighted as an area of concern. The respondents, however, were satisfied with the medium used to communicate. Competence was ranked as their least important service quality feature at the port. Physical access to the port was found to be non-problematic from the results; however, access to key staff members was found to be problematic especially during times of congestion. Access was ranked as the most important service quality feature by the respondents. Reliability was considered the second most import service quality feature. The results highlight that perceptions around reliability related to container operations are undecided amongst the port users. This is an

area that needs attention from port management, as unreliable container handling operations have detrimental consequences to port users. The findings indicate that the port users felt that the port management did not understand or know their needs or wants. Tangibles at the port and specifically, the handling equipment and access road leading into the port were viewed negatively or as being in an unsatisfactory condition.

The next chapter, Chapter 6, will provide an overview of the study, the findings of the study will be discussed, and managerial recommendations provided. The chapter also provides the limitations of the study and future research opportunities. The chapter ends with the researcher's conclusions.

## **CHAPTER 6: FINDINGS, RECOMMENDATIONS AND CONCLUSION**

## 6.1 INTRODUCTION

In the previous chapter the focus was on presentation of the collected data of the empirical study, which was analysed and discussed.

The final chapter of the study, Chapter 6 starts by providing an overview of the study by means of a very brief synopsis of each chapter. Chapter 6 then links to Chapter 5 by elaborating on the findings. Managerial recommendations based on the findings are presented. The literature reviewed, as well as empirical research findings, allowed for the identification of the limitations of the study and future research opportunities. The chapter concludes with the researcher summarising the important points of the research project.

Figure 6.1 below illustrates the outline of Chapter 6.



Figure 6.1: Chapter 6 Outline Source: (Author's own construct)

# 6.2 OVERVIEW OF THE STUDY

#### 6.2.1 Chapter 1: Introduction

Chapter 1 was used to introduce the study, the problem statement and the research questions. Additionally, a brief theoretical background was provided on service quality and port service quality. A conceptual model was then illustrated and briefly discussed, where the

dependent and independent variables were highlighted. This was followed by a delimitation of the study and an introduction to the methodology of the study.

# 6.2.2 Chapter 2: The Difference Between B2C and B2B Operational Service Quality

Through secondary research this chapter, by exploring various academic journal articles and books, was used to identify what B2C and B2B are and detailed the similarities and differences between B2C and B2B. Service Quality and Customer Service was then explored allowing the reader to develop an understanding of the concepts and how the two concepts relate to each other. The chapter was concluded by exploring what B2C and B2B operational service quality are.

#### 6.2.3 Chapter 3: Contrast Between International and Local Port Service Quality

By reviewing academic journals, trade magazines and various industry websites, the purpose of the chapter was to show the contrasts between international and local port service quality. The chapter started by detailing the importance of ports and providing an overview of the South African port network. Port service quality was then investigated in the selected ports by means of secondary research. The chapter was concluded by investigating port service quality at two of the Port of Cape Town's closest international competitors.

#### 6.2.4 Chapter 4: Research Methodology

Chapter 4 addressed the methodology of the research that was followed for the study. First, the chapter started by providing a definition of what research is. Second, the research design was discussed, detailing the research philosophes and approaches that exist. This study followed a positivistic research philosophy and used a deductive approach. Research methodology and strategy were also defined and discussed, and the methodological approach for this study was quantitative which used a survey strategy.

#### 6.2.5 Chapter 5: Results and Analysis

The data collected from completed questionnaires, is analysed, presented and discussed in Chapter 5. Descriptive statistics started with an analysis of the demographic data, which
allowed for describing the sample of the survey. The results and interpretation of the dependent variables and independent variables were then illustrated and discussed, with observations and references to the literature and comments from some respondents noted. Inferential statistical analysis was conducted by performing a Cronbach Alpha and Pearson's Correlation.

### 6.2.6 Chapter 6: Findings, Recommendations and Conclusion

Chapter 6 provides the findings of the literature and the empirical study and acts as a summary of the of the entire study. The chapter also provides recommendations to port management to assist in improving service quality. The chapter concludes by identifying the limitations of the study and discussing future research opportunities.

## 6.3 FINDINGS OF THE STUDY

The study's findings for each variable will be discussed in this section.

### 6.3.1 Service Quality

As discussed in Section 2.3, service quality has become an important topic of research as a full understanding of its antecedents and outcomes may assist service firms in satisfying their customers and improve their profitability and business performance (Ho et al., 2015). For service firms operating in international markets, superior service quality has been accentuated as an imperative competitive advantage. Through quality management practices, competitive advantage can be achieved, which leads to a service quality that is of a higher standard than that of competitors in the foreign market (Sichtmann et al., 2011, p. 2).

The results of the descriptive statistics indicated that overall, the port users were not satisfied with the service quality at the port. As indicated in Section 5.4.1, for all the statements applicable to service quality used in the questionnaire, many respondents disagreed with the statements. Based on the Cronbach Alpha of DV – Service Quality of 0.76, which indicates good reliability (Nunnally, 1978, p. 245) for the measurement used, it can be concluded that the port users are not satisfied with service quality at the port. As indicated in Section 2.5.2,

customer satisfaction is critical to business success. It has been found that satisfied customers have a higher return rate and bring in new customers, whereas dissatisfied customers result in bad publicity and declining corporate profitability (Huang et al., 2017, p. 1).

### 6.3.2 Communication

In the ranking section of service quality features, communication was ranked as the second most important after access. This indicates how important communication is to the respondents. In the section of the questionnaire where the impact of communication on service quality was determined from the respondents, it was found that most respondents were able to understand the language that was used to communicate information and the medium that they used for communicating was easy (user friendly). However, as indicated in Section 5.4.2, the respondents disagreed that information was timely and proactive. The literature supports this finding, where L. Venter (2018) in her article "*No end to Cape port congestion*," interviewed Terry Gale, Chairman of the Exporters' Club Western Cape and Mike Walwyn, chairman of the Cape Port Liaison Form (PLF), who both cited how a lack of information has caused frustration to the port users. In the article they referred to an incident where vessels were not berthing for two weeks but there was no communication forthcoming from TPT for the reasons of the delay.

The Port of Cape Town is not immune to a lack of proactive communication and its impact on port users as cited by (Elliot, 2016, p. 13) in is his Policy Briefing: Port Operations in Dar es Salaam, where a lack of stakeholder engagement had a negative influence on the port's customers and other stakeholders. An incident cited was when a new port operations management system was implemented, replacing one which both the port and key stakeholders were comfortable with, without consulting business partners beforehand. This change resulted in considerable challenges for port users, such as dry port operators and clearing and forwarding agents.

### 6.3.3 Competence

The skills and knowledge a service provider needs to perform a service is referred to as competence (Verma et al., 2010).

The results from the questionnaire to the statements for competence were mixed, however more respondents agreed on CMP2: the port staff has the required knowledge to perform their jobs (53.8%). For statements CMP1 and CMP2, a large percentage of the respondents were neutral (CMP1 (40,4%) and CMP3 (38,5%)). With a Cronbach Alpha of 0.58 which is considered acceptable reliability (Nunnally, 1978, p. 245), there is not sufficient evidence to conclude whether the staff at the Port of Cape Town are, or are not, competent. It was also interesting to note that competence, when ranked by the respondents, was the least important.

#### 6.3.4 Access

When ranking the service features, access was considered the most important by the respondents, therefore indicating the importance for the port users to both get access to the port and the port staff.

The results from the questionnaire indicate that while physical access to the port was not problematic, gaining access to port staff both telephonically and in person was an area of concern to the respondents. This was indicated by the 15 respondents to whom the questionnaire was administrated face to face, citing situations where they found it difficult to contact key staff members at the port both telephonically and in person, during times of disruption, such as congestion at the port.

Of concern was the response to statement ACC3 – "the port's staff is always courteous to port users when the port experiences congestion" (46,2% disagree and 40,4% neutral). In the literature in Section 2.5.2, Pomirleanu et al. (2016, p. 132) postulate that whenever employees are unable or unwilling to provide service at the required level, service quality gets negatively affected and underscores the critical role of customer-contact employees in forming perceptions of service quality.

### 6.3.5 Reliability

In section 2.5.1, reliability was defined as delivering the promised service to customers in an accurate and dependable manner (Dabestani et al., 2016, p. 162; Jiang et al., 2016, p. 303; Makanyeza & Mumiriki, 2016, pp. 2-3).

Together with communication, reliability was considered the second most import feature of service quality by the respondents in the ranking section of the questionnaire. Reliability ratings related to container handling operations were undecided when looking at the outcome of statements REL2 and REL5, and as indicated in section 5.4.5, it is an area where the port needs to focus, as the impact of the port not being reliable to truck owners not only results in monetary losses to truck owners but also affects their ability to deliver a reliable service to their customers.

The Cronbach Alpha for reliability was 0.67 which is considered as fair reliability (Zikmund et al., 2010, p. 306). It can therefore not be concluded whether the reliability at the port is good or not.

#### 6.3.6 Understanding/Knowing Customer

In the sections of the questionnaire where respondents had to rank the service quality features, understanding/knowing the customer ranked as the second least most important feature. An interesting observation as indicated in section 5.4.6, was that more respondents disagreed with all the statements measured for Understanding/Knowing Customer. The literature cited in Section 2.5.2 suggests that firms who participate proactively in their service creation may expect higher levels of service quality (Ho et al., 2015, p. 384).

A consequence of not understanding or knowing your port users' needs or wants as indicated by a respondent who formed part of the pilot study was that the port may lose business for cargo destined to the hinterland or other land locked countries, to an alternative port because of the frustration caused by the port not understanding customer needs or wants. The Cronbach Alpha for IV – Understanding/Knowing Customer was 0,85, which is considered good reliability (Nunnally, 1978, p. 245), therefore it can be concluded that the port users disagreed that the port understands or knows the port users' needs and requirements.

### 6.3.7 Tangibles

Verma et al. (2010) postulate that tangibles, which are the physical characteristics of the service, are gauges of its quality.

The findings in the study indicated that the respondents were undecided about the facilities in the port being visually appealing, with 40,4% being undecided on statement TAN2. For both TAN1 and TAN3, which relate to the handling equipment and access road at the port, the respondents had negative perceptions. Tangibles was ranked as the third most important feature of service quality by the respondents.

The findings are supported by De Wet (2014, p. 67), who in his study found that inefficient container handling of cargo leads to congestion at most ports including the Port of Cape Town. Similarly L. Venter (2018) in her article "*No end to Cape port congestion*," interviewed Terry Gale, Chairman of the Exporters' Club Western Cape, and Mike Walwyn, chairman of the Cape's Port Liaison Forum (PLF). They cited that, other than wind that was a major factor resulting in vessel waiting time and congestion, the state of container handling equipment was also a major contributing factor.

A large majority of the respondents to whom the questionnaire was administered face to face, also commented on a large hole in the road at the entrance to A- Check which has become a hazard to both the driver safety and cargo safety.

# 6.4 MANAGERIAL RECOMMENDATIONS

In section 2.3 it was stated that service quality has become an important topic of research as a full understanding of its antecedents and outcomes may assist service firms in satisfying their customers and improve their profitability and business performance (Ho et al., 2015).

To better understand how port users, measure service quality and what service quality features port users consider important, strategically allows the port to deliver a better quality of service to its users. The study's aim is to assist the management of the Port of Cape Town to better understand how the port users evaluate service quality and therefore deliver a better service to its users. The recommendations presented below address the Main Research Question: How can the Port of Cape Town improve its operations service quality for the port users? The six Secondary Research Questions are also answered.

### 6.4.1 Communication

The study determined that the language used to communicate and the medium of delivering the communication were acceptable, however the timeliness and proactiveness of communication were unsatisfactory. The following are recommendations for the port to provide communication that is timely and proactive:

- Train staff about the importance of proactive communication;
- Stop being reactive in communication;
- Identify developing issues and communicate them immediately;
- Be transparent in communication to avoid users developing their own opinions.

### 6.4.2 Competence

The results from the survey indicated that the port staff had the required knowledge to perform their jobs. Areas of concern for the respondents were with container handling operations and the port staff instilling confidence in the port users with their response time to enquiries. To improve the port staff performance in the two areas mentioned above, the following recommendations are suggested to be implemented by the port management:

- Provide regular training to staff with respect to their operational functions;
- Incentivise operational staff for consistent error free operational functions;
- Provide adequate training emphasising the importance of providing accurate and timely responses to port users' enquiries;
- Provide a channel to port users to escalate poor responses to enquiries and issues pertaining to container handling operations.

### 6.4.3 Access

Based on the results from the questionnaire, gaining access to staff members, and staff members not being courteous to port users, were highlighted as problem areas at the port. As access was ranked as the most important service quality feature, to improve access to port staff members and to assist port staff to be more courteous, the following recommendations are provided:

- Ensure that there is a dedicated telephone number which is properly manned which port users may call to raise queries;
- Ensure that supervisors are visible within the port terminal, therefore allowing truck drivers to call on the supervisors when they encounter problems in the port terminal;
- Provide a platform (either manual or electronic) which allows port users to raise concerns or provide compliments related to container operations or port staff interaction;
- Provide the necessary training to port staff to deal with port users in a courteous manner particularly during stressful times.

### 6.4.4 Reliability

For certain statements measured there was a high degree of uncertainty and disagreement. Of concern are "when the port promises to do something by a certain time it does so; The port loading and off-loading containers to and from trucks is done with ease; The port staff is never too busy to respond to enquiries; Container operations on land that the port provides are done so in a reliable manner." To address these concerns the following recommendations are suggested:

- Due to the very tight time lines port users face particularly container transporters, startup times promised after stoppages by the port must be met. The port needs to take into consideration the time required to get staff back to their operational posts and factor these and other start-up operation times required before communicating the time the port will reopen. The inclusion of these times should make the advertised start time more accurate;
- Port users must be proactively advised if the start-up time promised will not be met and an indication of new approximate start-up time provided. This will assist port users

to provide their customers with accurate information, regarding the expected arrival time of their containers;

 As indicated in 6.4.2, operational reliability concerns must be addressed by regular training for port staff in their various container handling operational functions. Similarly, port staff must be incentivised to improve container handling reliability. An example may be incentivising staff to load and off load containers with ease from container truck trailers and thus not damaging port users' trailers.

### 6.4.5 Understanding/Knowing Customer

The responses to the questionnaire inform that the port does not understand or know the port users' needs and wants. This is evident because for all the measured statements, many respondents disagreed with them. Therefore, the following recommendations based on the findings are suggested to allow the port to better understand the port users' needs and wants:

- The port should conduct its own survey with the port users in order to determine what facilities the truck drivers require. A lack of ablution facilities and no place to purchase food or refreshments especially during times of huge delays, were cited by the respondents to whom the questionnaire was administered face-to-face, as lacking and needed;
- Port users such as cargo owners and clearing and forwarding agents must be approached to determine their requirements, particularly those who use the port to move containers to the hinterland or land locked countries. The concern was raised by a clearing forwarding agent that the port does not understand their needs and they were considering a port in a neighbouring country to move their cargo to the hinterland or land locked countries. A suggestion would be for the port's sales and marketing staff to arrange visits targeting this port user group or have an annual symposium where the port user group can interact with the port's key staff members to allow for a better understanding of the port users' needs;
- In Section 6.4.3 it was recommended that a platform must be provided for port users to raise concerns or provide compliments, and this platform could also be used for the port users to make suggestions to the port which will allow the port management to better understand and know the port users.

## 6.4.6 Tangibles

Tangibles should be a great area of concern for the management of the port of Cape Town. More of the respondents disagreed with all the statements measured. Tangibles was also ranked as the third most important service quality feature by the respondents. To improve the perception of the tangibles and thus improve the perception of service quality to the port the following recommendations are suggested:

- The large hole at the entrance to A-check was highlighted by a majority of the respondents to which the survey was administered face to face, so that needs to be repaired urgently. The condition of the road should be maintained to eliminate the fears of the container truck drivers of injury to themselves or damage to their trucks and cargo in the containers;
- The port needs to implement a better maintenance programme for the container handling equipment as it was the respondents' perception that the handling equipment used in the port is not always in a good working condition;
- The port of Rotterdam through its investment in dual lifting technologies, has allowed for greater stability, which allows for uninterrupted operations in severe weather. The Port of Cape Town management should also look to invest in these technologies particularly to assist in prevention of disruptions to container handling operations in times that the port experiences strong winds.

### 6.4.7 General recommendations

A general recommendation to the management to the Port of Cape Town would be for frontline employees to conduct self-evaluations of service quality at the port. The literature has indicated that employees are more critical of service quality than customers and that employees are pivotal in shaping a customer's level of perceived service quality during the service encounter (Pomirleanu et al., 2016, p. 132).

# 6.5 LIMITATIONS

The limitations of the study which have been identified are listed below:

- Service quality is determined by numerous variables, however for this treatise only Communication, Competence, Access, Reliability, Understanding/Knowing the Customer and Tangibles were used. There are numerous other variables that have a relationship with service quality in a port environment and these should be investigated;
- Most of the respondents who completed the questionnaire were from the truck container transport business sector, so more should be done to encourage respondents from the other business sectors that were targeted, to respond; particularly shipping lines which are not only port users but direct customers of the port;
- Because of the poor response rate, the sample used may be considered not to be representative. The sample size together with the questionnaire's operationalisation, limited the inferential statistics that were performed;
- When performing the literature review on the contrast between local and international port service quality, non-academic resources had to be relied on as academic resources carried out on port service quality in the selected ports are sparse.

# 6.6 FUTURE RESEARCH OPPORTUNITIES

This study has identified that there is a lack of service quality at the Port of Cape Town and highlighted the areas that need to be enhanced to improve service quality perceptions at the port. This study may thus be used as a basis for further research. Opportunities for future research are listed below:

- As this study was explorative in nature, future research can be conducted to confirm the results of this research, to further test the hypothesised model for critical determinants of service quality at the Port of Cape Town;
- Adopting the same approach, similar studies can be carried out at the other South African container ports;
- A similar study should be conducted amongst the Port of Cape Town staff to identify their determinants of service quality, as well as their perceptions of service quality at the port;
- A model other than SERVQUAL or a model adapted from SERVQUAL must be used to test service quality in a port environment.

# 6.7 CONCLUSION

The study has highlighted the importance of service quality in B2B, particularly in the port environment. The literature highlighted that service quality drives customer satisfaction and that it impacts the profitability of a company and allows a company to charge premium prices for their goods and service. To have satisfied customers or users and to increase profitability, it is important for the Port of Cape Town to regularly evaluate its service quality.

The study's main objective was to determine what the critical determinants of service quality for the Port of Cape Town users are. An important research gap was filled by the study by obtaining the input of the Port of Cape Town users. The study highlighted that the port users were not satisfied with service quality and the areas that need to be focused on to improve the perception of service quality at the Port of Cape Town were identified. The study also indicated that access was considered the most important service quality feature.

The study's findings and recommendations can assist the management of the Port of Cape Town to develop strategies to implement, which can improve the service quality that is offered to their port users. By improving their service quality, the Port of Cape Town will not only assist in satisfying its users, it will also result in new and increased business and therefore profitability for the port.

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# ANNEXURES

### Annexure A: Copy of Email Sent to Respondents

From: Darren Thomas Sent: Wednesday, 22 August 2018 9:52 AM To: Andre Visser <andre@unitedlogistics.co.za> Subject: Service Quality Cape Town Port Users - Survey

Dear Cape Town Port user

Please assist me by completing the survey on the link below. The aim of the survey is to ascertain the critical determinants of service quality for the Port of Cape Town users. It will take approximately 7-10 minutes to complete.

The survey forms part of my MBA treatise. Thank you in advance for your support and time.

Please click the link below to complete the survey.

Start Survey

My Kind Regards

Darren Thomas

#### **Annexure B: Questionnaire**

#### Sponsored By : Nelson Mandela University - QuestionPro Academic Sponsorship Programme

Survey: Service Quality Port of Cape Town

Critical determinants of service quality for the Port of Cape Town users

#### Dear Respondent

I am studying towards my MBA (Master in Business Administration) degree at the Nelson Mandela University Business School. I am conducting research on the "Critical determinants of service quality for the Port of Cape Town users".

You are part of our selected sample of respondents whose views we seek on the above-mentioned matter. We would therefore appreciate it if you could answer a few questions. It should not take more than 10 minutes of your time and we want to thank you in advance for your co-operation.

Please note also that your participation in this study is entirely voluntary and that you have the right to withdraw from the study at any stage. We also guarantee your anonymity and the confidentiality of information acquired by this questionnaire. Neither your name nor the name of your firm will be mentioned in the study.

#### Yours sincerely,

Darren Thomas

Contact details: 083 798 3075 email:Darren@unitedlogistics.co.za

If you need to verify the authenticity of the study, please contact Dr Jessica Fraser at 041-504-3153 or e-mail jessica.fraser@nmmu.ac.za

Thank you very much for your time and support. Please start with the survey now by clicking on the Next button below.

SECTION A: DEMOGRAPHIC INFORMATION

What is your Gender

Male

- Female
- Prefer not to answer

#### \* The nature of the business you are in?

-- Select --

* How long have yo	u been working in yo	ur industry?			
0	0	0	0	0	
Service Quality Port	of Cape Town			?	QuestionPro

#### Sponsored By : Nelson Mandela University - QuestionPro Academic Sponsorship Programme

#### Survey: Service Quality Port of Cape Town

Critical determinants of service quality for the Port of Cape Town users

#### Dear Respondent

I am studying towards my MBA (Master in Business Administration) degree at the Nelson Mandela University Business School. I am conducting research on the "Critical determinants of service quality for the Port of Cape Town users".

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Thank you very much for your time and support. Please start with the survey now by clicking on the Next button below.

#### \*

#### SECTION A: DEMOGRAPHIC INFORMATION

#### What is your Gender

- □ Male
- Female
- Prefer not to answer

#### \* The nature of the business you are in?

-- Select --

#### \* How long have you been working in your industry?

0	0	0	0	0

Service Quality Port of Cape Town

**?** QuestionPro

Between 1-5 years

Between 6-10 years

\* Please state your nationality (example: South African)

#### Section B: The following questions concern your perceptions about service quality in the Port of Cape Town

Indicate the extent to which you agree to the following statements by clicking the appropriate circle.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
*					
The port tells you exactly when container operations on land will be performed	0	0	0	0	0
*					
It is easy to reach appropriate port employees by telephone	0	0	0	0	0
*					
Port users feel safe in their operational transactions with the port	0	0	0	0	0
*					
The staff in the port always demonstrates good knowledge of our needs	0	0	0	0	0
*					
The port's communication regarding container operations on land is always accurate	0	0	0	0	0
*					
The port uses a user-friendly medium to communicate with port users	0	0	0	0	0
•					
Supervisors are easy to access when enquiries need to be made	0	0	0	0	0
*					
The port's staff is never too busy to respond to enquiries	0	0	0	0	0
*					
Overall, we are satisfied with the service quality of the port	0	0	0	0	0
*					
Port users are always able to give the port feedback about its service levels	0	0	0	0	0
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
*					
The port always provides correct container information	0	0	0	0	0
*					
Container operations on land that the port provides are conducted in a reliable manner	0	0	0	0	0
Service Quality Port of Cape Town					<b>?</b> QuestionPro

* The port is easily accessible by road	0	0	0	0	0
*					
The port's employees perform their container handling operations right the first time	0	0	0	0	0
*					
The port's staff understands the port users' need for fast loading and offloading of containers onto trucks	0	0	0	0	0
*	0	~	0	0	•
Overall, we are satisfied with the management of the port	0	0	0	0	0
The port's staff gives individualised attention to port users	0	0	0	0	0
*					
The language used for the port's communication is easy to understand	0	0	0	0	0
<ul> <li>The port shows genuine concern about the port users' problems</li> </ul>	0	0	0	0	0
*					
The port's staff has the required knowledge to perform their jobs	0	0	0	0	0
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
*					
The facilities at the port are visually appealing	0	0	0	0	0
* The port loads and off loads containers to and from trucks with ease	0	0	0	0	0
*					
When a problem occurs, I get the port's full attention	0	0	0	0	0
* The part's container handling equipment	0	0	0	0	0
is always in good working condition	Ũ	U	0	0	Ũ
The port's employees always give timely information to the port users	0	0	0	0	0
*					
Access roads leading to the port are in a good condition	0	0	0	0	0
* The port has my best interests at heart	0	0	0	0	0
* When the port promises to do something by a certain time it does so	0	0	0	0	0
<ul> <li>The port communicates proactively about operational delays</li> </ul>	0	0	0	0	0
*					
The port's truck gate operating hours are convenient	0	0	0	0	0
Service Quality Port of Cape Town					<b>?</b> QuestionPro

<ul> <li>The port's staff are always courteous to port users when the port experiences congestion</li> </ul>	0	0	0	0	0
* The port's staff instills confidence in the port users with its response time to enquiries	0	0	0	0	0

# SECTION C: Please rank the below six service quality features according to how important the service quality feature is to you by ticking the relevant circle.

	Most important	Fairly important	Important	Slightly important	Least important
* Communication – Using language where port users can easily understand the different facts of the service offered	0	0	0	0	0
* Competence – The knowledge and skills the port staff needs to perform the ports services	0	0	0	0	0
<ul> <li>Access – Approachability and ease of contacting port staff and accessing the port</li> </ul>	0	0	0	0	0
* Reliability – The ability to provide what is promised, dependably and accurately	0	0	0	0	0
* Understanding/Knowing the port user – The ability to listen to the port user	0	0	0	0	0
* Tangibles - The physical appearance of the port facilities and equipment	0	ο	0	0	0

Thank you for your assistance in completing the survey, it is much appreciated.

Service Quality Port of Cape Town

**Annexure C: Ethics Clearance Form E** 

# NELS N MANDELA

UNIVERSITY

FORM E

#### ETHICS CLEARANCE FOR TREATISES/DISSERTATIONS/THESES

Please type or complete in black ink

FACULTY: Business and Economic Sciences

SCHOOL/DEPARTMENT: Graduate School of Business

I, (surname and initials of supervisor) Fraser, J

the supervisor for (surname and initials of candidate) <u>Thomas, D</u> (student number) <u>9348794</u>

a candidate for the degree of Master of Business Administration

with a treatise/dissertation/thesis entitled (full title of treatise/dissertation/thesis):

Critical determinants of service quality for the Port of Cape Town port users

considered the following ethics criteria (please tick the appropriate block):

	YES	NO
<ol> <li>Is there any risk of harm, embarrassment of offence, however slight or temporary, to the participant, third parties or to the communities at large?</li> </ol>		*
<ol> <li>Is the study based on a research population defined as 'vulnerable' in terms of age, physical characteristics and/or disease status?</li> </ol>		Í
2.1 Are subjects/participants/respondents of your study. (a) Children under the age of 18?		~
<ul><li>(b) NMMU staff?</li><li>(c) NMMU students?</li></ul>		

(d) The elderly/persons over the age of 60?		×
(e) A sample from an institution (e.g. hospital/school)?		V
(f) Handicapped (e.g. mentally or physically)?		7
<ol><li>Does the data that will be collected require consent of an institutional.</li></ol>		1
authority for this study? (An institutional authority refers to an		
omanisation that is astablished by novemment to protect vulnerable		i
people)		1
3.1 Are you intending to access participant data from an existing, stored		1
repository (e.g. school, institutional or university records)?		
4. Will the participant's privacy, anonymity or confidentiality be		
compromised?		
4.1 Are you administering a questionnaire/survey that:		
(a) Collects sensitive/identifiable data from participants?		×
(b) Does not guarantee the anonymity of the participant?		¥ 1
(c) Does not guarantee the confidentiality of the participant and the		
data?		r l
(d) Will offer an incentive to respondents to participate, i.e. a lucky draw.		<ul> <li>✓</li> </ul>
or any other prizo?		
(e) Will create doubt whether sample control measures are in place?		1
(f) Will be distributed electronically via email (and requesting an email		1
response)?		
Note:		
<ul> <li>If your questionnaire DOES NOT request respondents'</li> </ul>		
ideolification, is distributed electronically and you request		
respondence to rolure il manually forief aut and deliverimeil):		
AND approachest approximity and be guesseleed, your event will be		
how the spondent anonymity can be guaranteed, your answer with		
De NO.		
<ul> <li>In your questionnaire DOES NOT request respondents'</li> </ul>		
identification, is distributed via an email link and works through a		
web response system (e.g. the university survey system); AND		
respondent anonymity can be guaranteed, your answor will be		
NO		
Disconnects that if AND of the superfrom the set have been set of the set	- 10 M I I	AVEAL

Please note that if ANY of the questions above have been answered in the affirmative (YES) the student will need to complete the full ethics clearance form (REC-H application) and submit it with the relevant documentation to the Faculty RECH (Ethics) representative. and hereby certify that the student has given his/her research ethical consideration and full ethics approval is not required.

FT2ASETL SUPERVISOR(S)

HEAD OF DEPARTMENT

85t STUDENT(\$)

17/8/2018 DATE

15 Augunst 2018 DATE 30/08/18 DATE DATE

Student(s) contact details (e.g. telephone number and email address): 083 798 3075 <u>darren.r.thomas74@gmail.com</u>

Please ensure that the research methodology section from the proposal is attached to this form.

### Annexure D: Turn-it-in Report



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