

UNIVERSITY OF KWAZULU-NATAL

**Investigating Service Quality Perceptions of ChemSystems Paper Division
Customers**

By

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of
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DECLARATION

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Abstract

The manufacturers of pulp, paper and tissue in South Africa are facing a difficult challenge to remain competitive and to continuously produce paper products that are economically viable. The steady increase in imported paper products has placed these manufacturers under pressure to streamline their operations to reduce input costs and to remain competitive. Therefore, they have to resort to cost reduction initiatives, which have a direct impact on profitability for specialty chemicals suppliers that form part of the pulp and paper making value chain. Consequently, there is fierce competition amongst specialty chemicals suppliers in the industry to retain market share and profitability. ChemSystems Paper division is one of the many specialty chemical suppliers facing the challenging task of trying to maintain its competitive advantage under the current conditions. This competitiveness amongst specialty chemicals suppliers has rendered them to become increasingly similar in their product offering. Therefore, it was critical for ChemSystems to formulate a differentiation strategy to improve customer satisfaction, retention and profitability, based on service quality. In order to identify important factors contributing to service quality, a cross-sectional quantitative SERVQUAL investigation was conducted among pulp, paper and tissue manufacturers. The aim of this investigation was to assess the service quality level delivered by ChemSystems Paper division to its customers by identifying gaps between expectations and perceptions of service quality. The researcher used a questionnaire which had a five-point Likert Scale, and the questionnaire was linked to quality dimensions relating to the paper industry. By adopting a judgement sampling, a population of 92 respondents was identified, thereafter a census approach was executed where the questionnaires were distributed to all respondents in the population, where 77 participated. The researcher used Statistical Package for Social Sciences, Version 24 for descriptive as well as inferential statistical analysis. The findings indicated that all expectations of service quality exceeded the customer perceptions. It was also found that customer expectations of service quality in order of priority did not align with their perceptions on services provided by ChemSystems Paper division. Hence, the recommendations were put forward to address the misalignment, and to close the service quality gaps identified.

Key words: Service Quality, SERVQUAL model, specialty chemicals suppliers, pulp and paper, expectations and perceptions

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Pulp and paper manufacturers in South Africa are facing a difficult challenge to remain competitive and to continuously produce paper products that are economically viable (Marketline, 2015). The steady increase in imported paper products has placed local manufacturers under pressure to streamline operations in order to reduce input costs and remain competitive (Solomons, 2014). Consequently, various raw materials suppliers to the pulp and paper industry are directly affected by these initiatives, including specialty chemicals suppliers like ChemSystems Paper division. Domestic economic factors such as rising utilities, fuel and labour costs, coupled with inferior and unstable exchange rate of currency are also amongst the challenges contributing to the sector's adversities (Marketline, 2015).

When industries have reached maturity stage like the pulp and paper industry in South Africa, it becomes difficult for suppliers to differentiate based on products alone. Intensified customer awareness and shifts in customer demands have led to substantial competitiveness in business environment, such that traditional product related strategies are sometimes futile (Lay, et al., 2010). Therefore, services not only become vital in supplementing product offering, they also provide alternative sources of revenue through establishing good relationships with customers (Cusumano, et al., 2015). Maintaining and developing long-term relationships with customers is a key objective in a business-to-business (B2B) environment. According to Gounaris (2005), the prerequisites of establishing and maintaining lasting and profitable relationships are through maintaining good service quality to customers.

This chapter introduces the research study by first presenting the background and the significance of the study. Thereafter, the focus of the study and the research

problem is presented, which is followed by research objectives, research questions, and hypotheses for the study. It will conclude by discussing the research methodology and design.

1.2 Significance of the Study

The study will identify key areas to enable ChemSystems Paper division to develop a standard methodology and strategy to differentiate its service offering from other specialty chemicals suppliers in the South African pulp and paper industry.

To improve its competitive edge, ChemSystems Paper division need to examine the precursors of service quality to improve customer satisfaction and retention. By identifying and analysing gaps between customer perceptions and expectations using a SERVQUAL model, ChemSystems can revise and redesign its service offering to be realigned with its customer needs. Therefore, an improved service delivery should result in customer satisfaction and retention, and also attract new customers. The study also seeks to make a contribution to discussions on improving competitive edge for similar industries.

1.3 Focus of the Study

The study only focuses on the pulp and paper mills that have existing business relations with ChemSystems paper division. It was only conducted on three regions where ChemSystems paper division have majority market share, namely KwaZulu Natal, Gauteng and Western Cape. The scope of the study did not include other paper mills outside South Africa.

1.4 Problem Statement

Due to prevailing adversities in the pulp and paper industry, manufacturers have to resort to cost reduction initiatives. These initiatives have a direct impact on profitability for specialty chemicals suppliers that form part of the pulp and paper

making value chain. Consequently, there is fierce competition amongst specialty chemicals suppliers in the sector to maintain market share and profitability. Some have adopted low cost strategies to be perceived as cost effective suppliers to secure, and/or possibly grow market share. ChemSystems Paper division is one of the many specialty chemical suppliers facing the challenging task of trying to maintain its competitive advantage under the current conditions.

This competitiveness of the pulp and paper industry in South Africa has rendered specialty chemicals suppliers to become increasingly similar in their product offering. Therefore, differentiation through advanced product technology and product innovation to justify premium prices has proven difficult under current economic environment. Hence, a need to formulate other strategies to improve customer satisfaction and profitability. The adoption of a SERVQUAL study will therefore offer an opportunity for ChemSystems Paper division to improve on their service offering complement thereby differentiating themselves from competition.

1.5 Objectives of the Study

The main objective of this investigation was to assess the level of service quality delivered by ChemSystems Paper division to its customers and to suggest suitable recommendations.

The specific objectives of the study were to:

- Identify customer perceptions of service quality delivered by ChemSystems paper division.
- Determine customer expectations of service quality required from specialty chemicals suppliers.
- Examine the gaps between customer perceptions and expectations with view to make recommendations on how to improve on any service quality gaps identified in the study.

1.6 Research Questions

In order to address the research objectives, the following questions were posed for the investigation:

- i. What are the perceptions of service quality that exist among customers for ChemSystems Paper division?
- ii. What are the expectations of service quality that exist among customers for ChemSystems Paper division?
- iii. What are the gaps between customer perceptions and expectations?

1.7 Hypotheses

The following hypotheses will be evaluated in the study in order to determine if there is any variability on responses, relative to the research objectives and questions:

H1: There is a statistically significant difference in the perceptions of service quality dimensions amongst the biographical data variables for ChemSystems customers.

H2: There is a statistically significant difference in the expectations of service quality dimensions amongst the biographical data variables for ChemSystems customers.

H3: There is a statistically significant difference in the service quality gaps for ChemSystems customers on specialty chemicals suppliers.

1.8 Research Methodology and Design

There are three main approaches used in research, they are qualitative, quantitative, and mixed approaches. This study adopted a quantitative approach, as it focuses on interpretation of numerical data extracted from the research instrument (SERVQUAL questionnaire) which identifies gaps between customer expectations and perceptions of service quality. Also, the design of the research

instrument was appropriate in answering the research questions. The study adopted non-probability sampling, which was suitable for this type of research as it focuses on key peoples' perceptions and expectations of service quality within their respective organisations.

1.8.1 Research Design

The researcher adopted a cross-sectional design for the data collection of the study. This design option allowed for information to be collected from sampled customer decision-makers and influencers from the customer base of ChemSystems Paper Division.

1.8.2 Sampling Methods

The non-probability purposive sampling was adopted because it was necessary for the research study to obtain relevant information from a specific target group. This judgement sampling method was used to determine the relevant population and the study group which consisted of customers' key decision-makers and other relevant respondents who are exposed to services offered by ChemSystems Paper division. Thereafter a census approach was used where the questionnaires were sent to the entire population of 92 for data gathering.

1.9 Chapter Outline

This research study consist of five chapters, and they are structured as follows:

Chapter One: Introduction to the Study

The chapter presents the background of the research study with the focus on the main issues or challenges that have led to the study. The problem statement, objectives of the study, research questions, focus of the study and limitations encountered during the study were defined. Methodology and design with secondary sources of data related to the research study were also revealed.

Chapter Two: Literature Review

Chapter two, interrogates literature regarding concepts and different perspectives of quality. Characteristics of services, nature of services provided by specialty chemicals suppliers is also discussed in this chapter. The concept and model of service quality is further explored, together with detailed descriptions of service quality dimensions. Also, customer satisfaction and customer loyalty concepts with their relationship to service quality is discussed in this chapter.

Chapter Three: Research Methodology

Chapter three presents the research methodologies adopted for the study. Since the study is based on a quantitative approach, research strategies, sampling procedures and survey questionnaire design are explained in this chapter.

Chapter Four: Results and Discussion

This chapter presents, analysis and discussion of the results obtained from survey questionnaire. The gaps between service quality expectations and perceptions with regards to the dimensions of the SERVQUAL model are further analysed in this chapter using SPSS and Microsoft Excel.

Chapter Five: Recommendations and Conclusion

This chapter focuses on drawing conclusions based on findings of the research study and subsequent recommendations on improving service quality are proposed for ChemSystems Paper division.

1.10 Summary

The challenges facing ChemSystems Paper division are not unique amongst pulp and paper specialty chemicals suppliers in South Africa. Various circumstances

have contributed to the current environment. Technology advancement, stringent environmental regulations in the sector and other macroeconomic factors have resulted in a decline of the pulp and paper industry market. As such, ChemSystems need to explore all available options to maintain any form of competitive advantage.

ChemSystems Paper division has been a dominant force in the industry for years, benefiting from being a subsidiary company of AECI, one of the major chemical companies in South Africa. Also, the technology partnership with the globally recognised pulp and paper solutions company, Solenis, has always been a source of its competitive advantage, coupled with its technically inclined human capital with vast experience.

However, most of its differentiation strategies have always been product focused. In order to formulate new strategies on its service dimension, ChemSystems needed to identify critical gaps in current service quality from the feedback of its customers. Considering the challenges ChemSystems Paper division faces and a prospect of differentiating its business through service quality, it was fascinating to understand what the literature stated on the topic, as will be discussed in the next chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Today's marketing environment is characterised by changes in macroeconomics variables and increased rivalry amongst competing businesses. The role played by industrial services has increased in prominence as product manufacturing companies and solution providers have struggled with profitability erosion and a decreasing competitive edge with respect to their products (Kohtamäki & Helo, 2015). The predominant argument in the existing industrial service literature seems to be, that services create an opportunity for product manufacturers to facilitate value creation by providing add-on services, combining services and products into integrated solutions (Kohtamäki & Helo, 2015). In order to secure a larger market share, or to attract enough customers who are prepared to pay a premium price, most companies understand that they must provide products or services of greater value than their competitors.

For companies in service industries, unique competitive advantage is a result of better service quality which leads to customer satisfaction. The focus of this chapter is to review literature on improving service quality and/or customer satisfaction, with some emphasis on theoretical concepts of quality management, service characteristics, and the role of service quality in ensuring customer satisfaction and retention.

2.2 Concept of Service Quality

Quality is a frequently used term of describing products and/or services, and has been defined from diverse perspectives, can also imply different meanings to different people and organisations, therefore it lacks a universal definition (Saghier & Nathan, 2013). Historically, the concept of quality was greatly associated with products, therefore it gained early prominence in the manufacturing sector, and hence various definitions possess product characteristics than service characteristics. Various

authors have defined quality through a variety of approaches. A common definition according to Juran and De Feo (2010) refers to quality as fitness for use. This definition implies that quality is meaningless unless it is in relation to the purpose the product or service is intended to fulfil. However, it also raises the question of who is entitled to decide if a product or service is adequate for use, as it needs to be tried and tested or used first in order for it to be deemed fit. A production company may test a product and approve it as fit for use but customers can still disapprove it. The approach adopted here is therefore subjective.

Crosby (1988) cited by Thomasson and Wallin (2013) also defined quality as conformance to standards. This approach is usually adopted in public services, with its origins from quality control in the manufacturing environment. The quality of a product is usually measured in terms of conformance to specifications, to ascertain if it meets the standard set (Elassy, 2015). The implication of this definition is that when a company adheres to specific patterns provided by customers, that product or service is deemed as quality. Another definition described by Deming (2000), cited by Aole and Gorantiwar (2013) states that quality should be directed at the needs of the customers. This definition deals with the importance of knowing who the customers are and identifying their needs in order to satisfy them (Elassy, 2015). Quality in this context is defined by meeting or exceeding agreed customer requirements to achieve customer retention, as it is difficult for satisfied customers to switch. This is the same concept adopted for this research based on the SERVQUAL model of service quality. Quality, in context to this study is therefore recognised from the customer point of view on whether it meets or exceeds expectations.

2.3 Nature and Characteristics of Services

Defining and establishing characteristics of a service requires a distinction to be made between physical goods and intangible services, however, the past emphasis by marketers generally ignored this dissimilarity (Coetzee, et al., 2013). According to Grönroos (2000:47), a service can be defined as “an action or performance that consist of activities or a series of activities rather than things”. Literature also categorises service into four areas. These are intangibility, variability, inseparability

and perishability. These distinguishing characteristics make services more difficult to evaluate than physical goods.

2.3.1 Intangibility of Services

The intangibility attribute implies that services by nature cannot be felt, tasted, sensed or seen before they are bought (Kotler & Keller, 2012). This renders them to be physically intangible and contrasts them with the physical substance of products. Therefore, it presents a challenge of storing services, and they cannot be willingly displayed or easily communicated (Kumar & Mishra, 2014). The degree of intangibility however differs amongst services, as some of the service solutions can be very concrete and tangible, for instance if the service delivered is a software program, a written report or a drawing of a design (Xina, et al., 2013). Therefore, in order to reduce uncertainty, buyers usually look for evidence of quality by drawing inferences from other tangible marketing tools like place, people, equipment, communications material, symbols and price (Kotler & Keller, 2012).

2.3.2 Variability of Services

From a service context, the term variability refers to the difficulty to standardise services. The quality of services depends highly on who provides them, when and where, and to whom (Kotler & Keller, 2012). The quality of a service can vary from producer to producer, from customer to customer, and from day to day. This usual lack of uniformity in services presents difficulties in product development processes, due to a human factor involved (Xina, et al., 2013). Service buyers are also aware of this variability, and often talk to others before selecting a service provider. Hence, some organisations usually offer service guarantees to potential customers to reduce perceptions of risk.

Variability of services is often exclusive, in both the uniqueness of the customer to be serviced and uniqueness of the desired outcome. Therefore, every service offering is customised in terms of size, scope, activities and deliverables to meet specific business goals and constraints of each client (Xina, et al., 2013).

Even when similar services are replicated amongst clients, their marketing requires customised relationships with each client. The services provided by Knowledge-Intensive Business Services (KIBS) firms is exceptionally diverse, as they not only focus on price/cost competition, but also on quality of service provided and differentiation. With a wide range of customer demands many of the KIBS providers have very limited information before engaging on a project.

2.3.3 Inseparability of Services

Inseparability of service refers to production and consumption of services occurring simultaneously (Xina, et al., 2013). This is in contrast with physical goods where they are manufactured, inventoried, then distributed, and later consumed (Kotler & Keller, 2012). The provider is also part of the service. The very act of service being created requires the source, whether person or machine, to be present.

In other words production and consumption occur simultaneously with services. This is a special feature for services marketing, because the client is also often present which facilitates for provider-client interaction (Kumar & Mishra, 2014). This encourages the customer's involvement in the process of production and terms. In service industries most of the services are produced with the customers input. The extent of customer's involvement varies widely, from the service carried out on behalf of the customer by a KIBS firm, to the service carried out by the customer with facilities or equipment of the KIBS firm (Xina, et al., 2013).

2.3.4 Perishability of Services

Perishability refers to the fact that services cannot be stored for use at later stage, resold, saved or returned (Taherdoosta, et al., 2013). The perishability nature of services can sometimes pose problems when demand fluctuates. It presents a dominant marketing challenge as there is no ability to stockpile services to meet fluctuating demands like physical goods, as a result service firms are seriously affected by changes in demand (Awara & Anyadighibe, 2014). Management of demand is critical in order for the right services to be provided to the right customers

at right places, at right times and at right prices for profitability to be maximised (Kotler & Keller, 2012).

If a service is not used when available then the service capacity is wasted. If the quantity also exceeds the demand, excess part cannot be stored, rather it will be lost (Xina, et al., 2013). For customers to be satisfied and to avoid unnecessary waste of resources, service firms require an ability to predict future demands in order to prepare for required services in advance (Xina, et al., 2013). This can be achieved through industrial and technological trends from the knowledge base of the organisation.

2.4 Customer Activity in Service

Service is usually observed through interaction between two or more parties, but it is not often viewed from how one party applies the outcomes of interaction (Mickelsson, 2013). It is important for service to be seen also from the customer's point of view. According to Heinonen, et al., (2010:545), to comprehend a customer's perspective regarding service, ones focus should not be only limited to exchanges between the service provider and a customer, but it should also encompass other activities that are key to building customer value. To further illuminate on this, they divided the customer's domains of activity into three categories, namely: core activity, related activity and other activity.

The core activities of the customers are those visible to the service provider and are immediately related to using all the service components of a provider (Mickelsson, 2013). These are all the inputs a provider uses in the process of the customer, and they are within the service provider's domain of influence, such as direct interactions with customer, or direct use of products. Authors such as Gronroos and Voima (2012:139) refer to this as "the joint sphere of value creation", where both party's inputs are contributing towards customer's creation of value. A high degree of customer integration also yields stronger social interaction during service encounter. However, misunderstandings are likely to occur between service employees and customers because of different backgrounds (Sichtmann, et al., 2011).

The related customer activities are similar to core activities in focusing on value creation process, however, they are unseen to the service provider but vital to the customer, hence they are sometimes referred to as the customer's sphere of value creation (Mickelsson, 2013). These activities may include supplemental information searches, interactions with other complementary service providers and/or interactions with competitors. This customer-dominant logic suggests that service organisations should attempt to find out what customers actually do with the service to accomplish their own goals, rather than treating customers as partners in co-creation. Therefore, service providers would benefit from a holistic understanding of the customers' practices and experiences, which is where service is naturally and unavoidably rooted (Rihova, et al., 2013).

Other customer activities are those activities that are also invisible from the service provider but have an indirect influence on creating value within the core and related activities. Even though they are not directly involved in value creation, they still influence its structure (Mickelsson, 2013). Value develops through behavioural and mental processes of the customers when they interpret experiences and reconstruct an accumulated customer reality where value is entrenched (Heinonen, et al., 2013).

The customers have an understanding of each activity to execute it whenever the need arises, and these activities do not need to be considered as sequence of events, but rather patterns where each activity relates to the other. They can be viewed in terms of systems or networks, and a customer activity network can be used to clarify the role of the service provider in the customer's business (Mickelsson, 2013).

2.5 Nature of Services Provided by Specialty Chemicals Suppliers

The chemical industry in South Africa comprises of commodity chemicals, specialty chemicals, agricultural chemicals and various other chemicals which include products such as pharmaceuticals (Marketline, 2015). Specialty chemicals are mainly used by manufacturers of pulp, paper and tissue products, plastic products and water utility

companies amongst others. The suppliers of specialty chemicals in these industries offer Knowledge Intensive Business Services (KIBS) to supplement the product offering.

Specialty chemicals suppliers are usually private companies that rely heavily on professional knowledge or expertise related to a specific discipline and functional field. They supply intermediate products and services that are knowledge based (Xina, et al., 2013). They also act as an external source of knowledge and contribute to innovations in their customers firms, because they possess high level technology and other competencies based on highly educated workforce and accumulated technical knowledge, by playing an agent role in their customers' innovation processes (Xina, et al., 2013). The idea of focusing on services also creates growth for specialty chemicals suppliers to achieve financial and strategic benefits. These companies that manufacture core products possess all the competence to provide additional services while freeing their customers from related time and labour costs (van Iwaarden, et al., 2011).

2.6 Service Quality

Service quality is a widely discussed concept in services marketing today. It is commonly regarded as a precursor to customer satisfaction and loyalty (Prentice, 2013). This relationship is based on various research evidence that customer satisfaction is a result of service quality, and once a customer is satisfied, loyalty will develop and later profitability will be achieved. However, service quality is sometimes perceived as an elusive concept because of the unique service characteristics, namely, intangibility, variability, inseparability and perishability (Prentice, 2013). Furthermore, it can be difficult to replicate as it is also dependant on human attitudes and perceptions (Yuen & Thai, 2015). Therefore, it sometimes results in greater irregularities in managing customers experience (Yuen & Thai, 2015).

Service quality has been researched and investigated from different contexts in the past, and these investigations have included a variety of service characteristics. However, it is essential to understand how these factors impact on both the precursors and outcomes of service quality (Black, et al., 2014). The most frequently studied precursors of service quality are customer orientation, employee expertise and perceived service setting.

When an organisation's focus is on customer-oriented culture, its employees adopt that culture and become motivated to manifest a behavioural practise that improves satisfaction and value for the customers. This in turn results in higher perceptions of service quality (Black, et al., 2014). The original thought of customer orientation proposed that customer needs are central to a service company and the whole business should see from a customer point of view. More importantly when the focus is satisfying customer needs rather than selling products (Wang, 2016). Customer orientation allows service companies to effectively measure and improve service levels to meet customer demands, and consequently increase customer satisfaction and loyalty by providing the customer with greater value (Chang, 2011).

Concerning a precursor of expertise, specialised and technical services usually require the customer to rely on service providers for guidance, as they possess high levels of knowledge and skill regarding the service. This is the type of relationship that prevails between specialty chemicals suppliers and paper manufactures in the pulp and paper industry in South Africa. This contributes to customers' piece of mind regarding the service encounter and consequently higher customer perceptions of service quality (Black, et al., 2014). Various organisations have come to an understanding that technology-based competitive advantages are short-lived, and the only viable competitive advantage they have are their employees. Therefore, to maintain their leading positions in the market, they must possess good capacity to retain, develop, utilise and organise their employee competencies. The perceived service setting has an impact on customers' and service providers' social interactions and internal responses. A service setting that stimulates positive responses between the two parties will have a positive impact on perceived service quality.

Black, et al., (2014) analysis also discussed three broad categories of service quality outcomes, namely, behavioural outcomes, financial performance and customer outcomes. According to these analysis, favourable behavioural intentions arise when service quality perceptions are high, and these intentions usually include increased patronage and willingness to pay more. These perceptions of service quality have a positive impact on the financial performance of the organisation providing service. Also, the impact of high service quality perceptions results in customer retention with repeat purchases and additional services. All these behavioural outcomes have a positive contribution to the organisation's financial performance, because they signal that customers are forging bonds with a company (Zeithaml, et al., 1996). As service quality perceptions increase, they have a positive impact on customer satisfaction, perceived value and trust. With the increase in perceived service quality, customers also perceive greater value for amount spent, which establishes a positive relationship between service quality and value.

2.6.1 Service Quality Models

There are numerous service quality models discussed in literature including Lehtinen, 1982, Gronroos, 1982, Berry, Parasuraman and Zeithaml, 1985, Haywood-Farmer, 1988, and Brogowicz, 1990 amongst others. Lehtinen's model, has three broad dimensions of service quality, namely:

Physical quality which is a tangible part of service, interactive quality which refers to two-way interactions between customer and service provider, and corporate image quality which is a perceived image of service provider by existing and future customers (Jain & Aggarwal, 2015).

Also, Gronroos (1982) defined service quality as a three dimensional concept, comprising of firstly, technical quality, which he referred to as a by-product of interactions between customers and their service providers. Secondly, functional quality, as a technique used to deliver technical quality (Kang & James, 2004). Lastly,

image, which is made up of beliefs, word-of-mouth, pricing and including both technical and functional quality (Jain & Aggarwal, 2015).

In a Haywood-Farmer (1988) model, there are also three equally important dimensions. Starting with people's behaviour, physical facilities and processes and lastly, professional judgement. In this model high service quality is achieved when an organisation consistently meets preferences and expectations of customers (Jain & Aggarwal, 2015). The service quality attributes of this model are associated to those of Parasuraman, et al., (1985) service quality model (Yarimoglu, 2014).

In 1990, Brogowicz proposed a model that takes into account perceptions of not only existing customers, but also potential customers, and it focused on three factors, namely, company image, external influencers such as culture, word-of-mouth, social structure, media exposure and competition etc, and lastly traditional marketing activities such as advertising, public relations, sales promotions etc (Jain & Aggarwal, 2015).

Berry, Parasuraman and Zeithaml through conducting administrative interviews and focus groups developed a SERVQUAL model initially comprising of ten dimensions, namely, reliability, responsiveness, competence, access, courteousness, communication, trustworthiness, safety, understanding/knowing the customer and tangibles. These dimensions were used by customers in forming expectations and perceptions of services. In this model service quality is defined by the difference between expectations and perceptions, and the wider the gap, the inferior the service quality and the more is the need to improve (Jain & Aggarwal, 2015).

The SERVQUAL focuses on a wider scope of dimensions compared to other models, and it is also proven to be a suitable measure of service quality in various industrial settings, hence it was chosen for the purposes of this study.

2.6.2 The SERVQUAL Model

This model consist of five dimensions, namely, tangibles, assurance, responsiveness, reliability and empathy. Originally, Parasuraman, et al., (1985) developed a conceptual model (Figure 2.1) of service quality where they identified five gaps that could impact customer's evaluation of service quality.

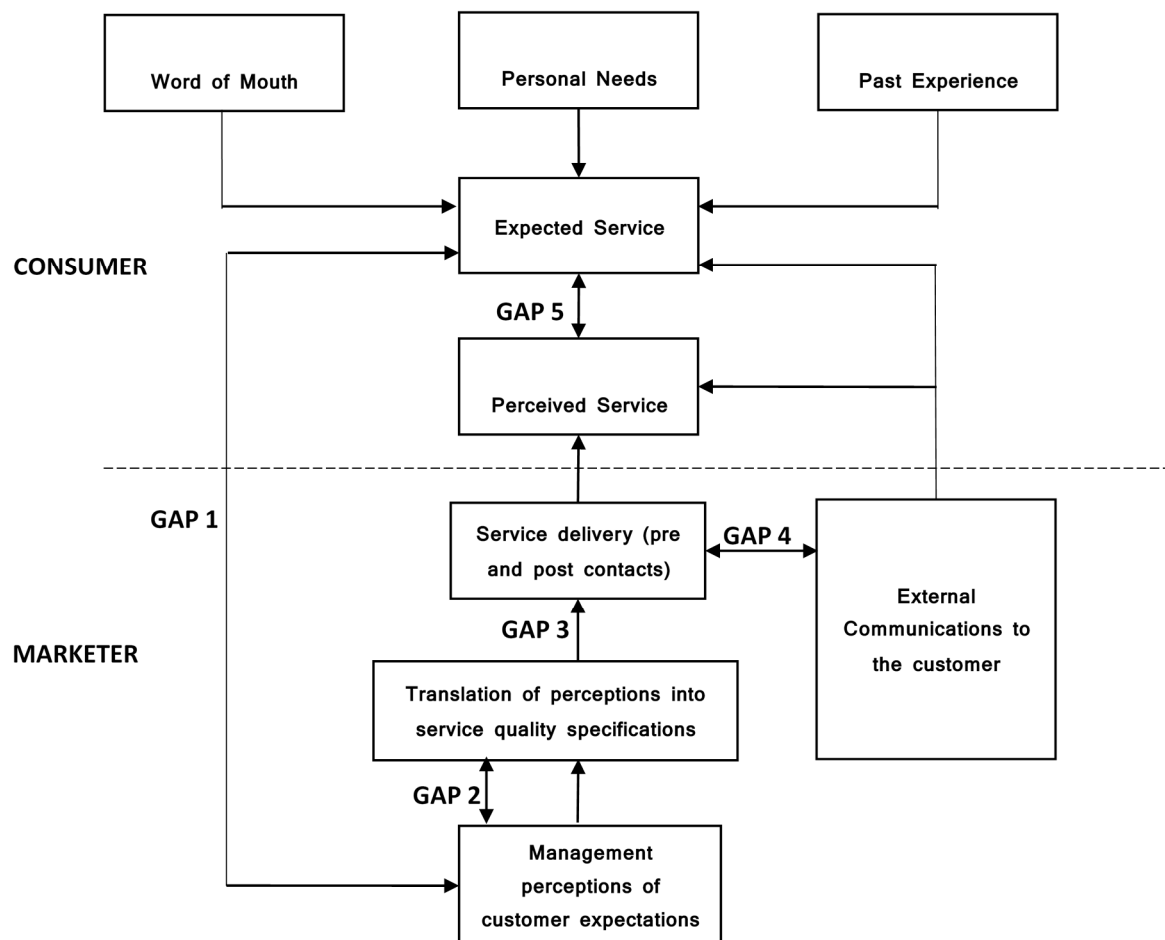


Figure 2.1: SERVQUAL GAP Model

Source: Parasuraman, et al., (1985)

GAP 1: Consumer expected service – management perception gap

Gap 1 indicates that service providers may not always understand the service features required to meet customer needs and levels of performance on those features needed to deliver high quality of service (Kamble & Sarangdhar, 2015). According to

Parasuraman, et al., (1985) the quality perceptions of customers can be affected by this lack of understanding.

GAP 2: Management perception – Service quality specification gap

This gap is recognised when the company can identify customer wants but does not have necessary resources to deliver to expectation (Kamble & Sarangdhar, 2015). This gap may be affected by market conditions and resource constraints. However, apart from these constraints another reason may be lack of total management commitment to service quality (Parasuraman, et al., 1985).

GAP 3: Service quality specification – Service delivery gap

The guidelines for performing services well may be in place, but it does not mean that high service quality is guaranteed. Employees also play an important role in ensuring good service quality (Kamble & Sarangdhar, 2015). This gap arises due to poor employee-to-job fit, poor technology-to-job fit, inappropriate supervisory systems in place, lack of teamwork amongst other factors (Kamble & Sarangdhar, 2015).

GAP 4: Service delivery – External communications gap

This gap represents a communication problem between service delivery and what is communicated about the service to customers (Kamble & Sarangdhar, 2015). Advertising and other forms of communication can affect the customer expectations. This can create high expectations to the customers, which will have a bearing on their perceptions of the actual services they receive. Therefore, the service providers must be certain not to promise more in their communications than they can deliver in reality (Parasuraman, et al., 1985).

GAP 5: Expected service – Perceived service gap

The broad focus group interviews conducted by the founders during the inception of the model explicitly support the concept that service quality, from customers perspective stems from a comparison of what they feel a service provider should offer

(expectations), with their perceptions of the actual performance of a service offered to them (Parasuraman, et al., 1988). Therefore, perceived service quality is regarded as the degree and direction of inconsistency between perceptions and expectations of customers (Parasuraman, et al., 1988).

The term “expectations” used from the service quality context however, has a different connotation to that of customer satisfaction. The expectations from the satisfaction context are viewed as customer predictions on what is likely to happen during a transaction or exchange. Whereas for service quality, they are viewed as desires or wants of what customers feel a service provider should offer (Parasuraman, et al., 1988).

2.7 SERVQUAL Dimensions

According to Parasuraman (1985), focus groups revealed a basically similar criteria of evaluating service quality, regardless of the type of service offered. This criteria fell into 10 key categories called service quality determinants, as previously mentioned. These original determinants of service quality were:

- **Reliability** - involved consistency of performance and dependability
- **Responsiveness** – willingness or readiness of employees to provide services
- **Competence** – possession of required skills and knowledge to perform the required service
- **Access** – approachability and ease of contact
- **Courtesy** – politeness, respect, consideration and friendliness of personnel
- **Communication** – keeping customers informed in a language they can understand, and listening to them
- **Credibility** – trustworthiness, believability and honesty. Involves having a customer’s best interest at heart
- **Security** – freedom from danger, risk or doubt
- **Understanding/knowing the Customer** – making the effort to understand customer’s needs

- **Tangibles** – physical evidence of the service

However, due to some degree of overlapping for some of these dimensions, the final SERVQUAL instrument was narrowed down to five dimensions from which all the statements to be considered by customers are related. Three of the original determinants (tangibles, reliability and responsiveness) remained unchanged. Seven other determinants (communication, credibility, security, competence, courtesy, understanding/knowing customers and access) were accommodated on two last dimensions, (empathy and assurance) during scale purification (Parasuraman, et al., 1988). These final dimensions as hypothesised by Parasuraman, et al., (1991) represent how customers organise information about service quality in their minds (Shandiz & Jones, 2015). The final five dimensions and their brief descriptions are as follows:

Table 2.1. SERVQUAL Dimensions and descriptions

DIMENSION	DESCRIPTION
RELIABILITY	Ability to perform promised service dependably and accurately.
RESPONSIVENESS	Willingness to help customers and provide prompt service.
ASSURANCE	Knowledge and courtesy of employees and their ability to convey trust and confidence.
EMPATHY	Caring, individualised attention the company provides its customers.
TANGIBLES	Appearance of physical facilities, equipment, personnel and communications material.

Source: Jones, J. and Shandiz, M. 2015. **Service Quality Expectations: Exploring the Importance of SERVQUAL Dimensions from Different Nonprofit Constituent Groups**. Oklahoma City: p52.

The more in-depth analysis of these dimensions are further discussed in the next section.

2.7.1 Reliability

Initial investigations during the inception of the model confirmed that reliability is the most significant dimension of perceptions of service quality, and tangibility a less relevant dimension. Reliability describes the ability of a service provider to deliver on

its promises, and customers prefer to do business with companies that keep their promises (Shandiz & Jones, 2015). According to Gronroos (2009), fulfilling promises made to customers form a strong basis towards maintaining service relationships. Communicating and pricing are some of the marketing activities and processes that are aimed at making promises to the customer (Gronroos, 2009). He suggests that service providers need to adhere on three essential activities, which are, *making* realistic promises to customers, *keeping* those promises during the service delivery process and lastly to *enable* service systems through the right equipment and also employees through skills and training to deliver on those promises (Weber, 2013). Service providers' employees and systems need to be able to deliver these promises often, and in real time to build and maintain good relationships with customers. It is not sufficient for service organisations to only deliver a portion of these marketing activities as all three are essential for delivering fruitful customer relations. A service organisation can make attractive promises through strong marketing initiatives, but if those promises cannot be delivered to customers due to lack of resources and employee expertise can harm the relationship.

2.7.2 Responsiveness

Responsiveness to general changes in market environment is an important factor for any industry. For survival and prosperity in the market, organisations always strive to continuously respond to opportunities and threats presented by ever changing markets environment (Homburg, et al., 2007). According to Homburg, et al., (2007), there are two key groups in an organisation's environment, customers and competitors, and they fall into two basic categories, namely, 1). To focus on company information processing improvement, like Customer Relationship Management systems (CRM), which they refer to as *cognitive organisational system*, and 2). Aim to change the organisation's culture which they refer to as *affective organisational system*. For organisations interested in improving their responsiveness to competitors/customers, it is important to know which system is more suitable.

However, for the purposes of this study, the focus is on responsiveness to customers. In the context of the SERVQUAL model, customer responsiveness generally rates

amongst the high dimensions in order of importance. It is transferred to customers by a service provider's willingness to be helpful, in a prompt manner and promptly responding to customers' questions. It addresses concerns like waiting time for the customer before a service is offered, and the manner of attention given to the customer's problems. For a positive result on customer responsiveness dimension, the service provider, should view customer service from the customer's point of view (Shandiz & Jones, 2015). According to Dawson and Meehan (2002:27), "the core to customer responsiveness is about being fast and right, by being right, the customers get something that meets their needs, but that value also depends critically on the speed with which the response is produced", and the combined performance maximisation across the two dimensions is what creates exceptional customer responsiveness (Dawson & Meehan, 2002).

2.7.3 Assurance

The assurance dimension generally covers high risk qualities where a service outcome cannot be easily quantified even after the service has been received. This dimension is critically important in service conditions where high technical complexity is the norm, as it usually requires intense resources from the service provider. These resources often include, organizational knowledge, expertise, experience, skills, systems and capabilities from the employees of service providers, and they form a firm specific signature that results in market dominance (Uysal, 2007).

High technical complexity also increases the degree of uncertainty and loss of control from the customer as there could be multiple potential outcomes. Therefore, these conditions often require customers to frequently rely on service providers to offer guidance (Black, et al., 2014). Subsequently, trust and sense of security are the main characteristics to be determined for this dimension (Shandiz & Jones, 2015).

Customer trust in a salesperson is generally considered a key determinant of relationship quality in business-to-business relationships, because a relationship

between two organisations is primarily a relationship between people (Swan, et al., 1999). Therefore, it is important to position right participants as drivers of the future business partner relationships by managing dynamics within and across partner organisations (Paliszkiewicz & Klepacki, 2013). Swan, et al., (1999) suggest of two components to consider when dealing with customer trust of the salesperson, namely affect and cognition. They define affect as “feeling secure or insecure about relying on the salesperson”, and cognition as “the belief that the salesperson has both the necessary competence and motivation to be relied upon” (Swan, et al., 1999:94).

2.7.4 Empathy

Empathy is related to personalised service, whereby customers feel unique and special by the level of understanding the service provider responds to their needs. Customers want the provider to understand their unique needs and to feel understood in a way that allows for personalised services to be offered to them (Shandiz & Jones, 2015). The empathy dimension considers accessibility, sensitivity and effort in understanding customer needs.

Maintenance of relationship quality and customer commitment is highly dependent on salesperson's actions and characteristics. Two of these characteristics are empathy and listening skills. To serve customers, salespeople must have a clear understanding of customer needs and wants and that is where empathy and listening skills become essential (Aggarwal, et al., 2005). However, the customer orientation emphasis to enhance the relationship should start at management level of the organisation. While salespeople are primarily responsible for implementing customer service, management commitment to its employees and customers contributes to its success.

2.7.5 Tangibles

The intangible nature of services often allows customers to sometimes look for external suggestions of expected or received service quality. The evidence may come

in different form of elements including employees' appearance, communications material or equipment (Shandiz & Jones, 2015). Tangibles provide a physical representation or image to customers as a cue to a certain type of service quality a particular provider offers. Making good impression is good for business, even when the state of the company facilities has nothing to do with the level of customer service. Poor upkeep of those facilities create a negative impression on the company (Mack, 2017).

2.8 Customer Satisfaction

Generally, customer satisfaction focuses on consumers' overall judgement including service features, products, sales personnel or other situational variables (Farraj, et al., 2016). Jamal and Naser (2002) cited by Farraj, et al., (2016:130) define customer satisfaction as "the feeling or attitude of a customer towards a product or service after it has been used". Once a customer is satisfied, positive messages about products or services will be transferred to others, by engaging in positive word-of-mouth, however a dissatisfied customer will also engage in negative word-of-mouth which can be detrimental to the company image. Also, the same dissatisfied customer may switch to other product and service alternatives available in the market (Farraj, et al., 2016).

Therefore, customer satisfaction is an essential component of modern marketing more especially for service industries. It is such a powerful measure for service intense industries such as banks and hotels. However, specialty chemicals suppliers to the pulp and paper manufacturers are also not exempted from the rule. Service providers can recommend value propositions for their services, however, the customers are the only ones who can recognise and determine the value of those services offered to them (Chou, 2014). The understanding of motivations, expectations and desires of both the service provider and the customer provides a foundation on an appropriate manner of serving the customer (Naik, et al., 2010).

The requirements of customer satisfaction by a service provider are usually internally based processes, standards and criteria that the organisation should strive to achieve.

To meet or exceed these can be an indication of success or failure, and at times, these components can overlap with those set by the customer, but they can also diverge. Therefore, the components and standards considered important by the customers are a vital source of information in the process of achieving improved customer satisfaction, and there are various tools available to extract this kind of information.

Customers over some time have begun to demand more from companies and their salespeople. These demands tend to require additional sets of problem-solving and value-proving skills to the salespeople's traditional portfolios (Agnihotria, et al., 2017). Recent studies by Roman and Martin (2014) agree that adaptive selling can have positive consequences on different dimensions of customer satisfaction. Speakman and Ryals (2012), also argue that adaptive selling can improve the salesperson's ability to build positive relationships with buyers. It is also useful for salespeople to alter sales presentations and other communications styles to be more aligned to specific customers expectations. Agnihotria, et al., (2017) conclude that salespeople who implement adaptive selling behaviours are more likely to understand customers perspective, because they possess an ability to listen to diverse customer needs and respond appropriately with customised solutions.

2.9 Service Quality and Customer Satisfaction

Service quality is an important precondition for customer satisfaction and it means providing goods and services that create levels of perceived satisfaction so that the customer remains positively committed to the service or product company (Lu, et al., 2015). However there has been lack of unanimity from different researchers on the concept of customer satisfaction because it has been looked at from different viewpoints (Agyapong, 2011). According to Rust and Oliver (1994), customer satisfaction or dissatisfaction is a perceptive or emotional reaction that emerges as a response to a single or prolonged service encounters (Agyapong, 2011). According to Anderson and Fornell (1994), the literature is not very clear on the distinction between quality and satisfaction. However, Parasuraman, et al., (1985) concedes that satisfaction is a post-consumption experience which associates perceived quality with expected quality, alternatively service quality refers to a global evaluation of a

company's service delivery system. Iacobucci, et al., (1995) also argues that the difference between customer satisfaction and service quality is that the latter relates to the core of service delivery by a service provider, while satisfaction resonates with customers experience relative to that service, cited by (Yuen & Thai, 2015).

Leverin (2006) suggests that customer evaluation methods should reflect a type of exchange that is being appraised, which can be transactional or relational. Some frequently used procedures in a relationship framework are relationship quality and relationship satisfaction. However, these paradigms are highly related and are sometimes difficult to separate in transactional interactions, even more so from a relationship perspective. In long term relationships perceived quality and satisfaction are likely to merge into an overall evaluation of relationship satisfaction. Perceived performance is usually subjective on the customer's perception of quality, marketing mix, brand name and company image (Leverin & Liljander, 2006).

Corporate image is also recognised as a significant aspect in the inclusive assessment of the service of the company. It is considered as a function of accumulated purchasing and/or consumption experiences over time, or a cumulative effect of customer satisfaction or dissatisfaction (Srivastava & Sharma, 2013). Some researchers consider corporate image to be multidimensional, with the main dimensions being reputation and credibility. Reputation represents global assessment of the company over time and credibility is important in assessment of services and trust characteristics (Srivastava & Sharma, 2013).

2.10 Summary

ChemSystems Paper division has the capacity to exploit the SERVQUAL model as a strategic tool to preserve its competitive advantage amongst other competing businesses in the pulp and paper specialty chemicals industry in South Africa, as the literature has pointed out. However, it is also recognised that there is tremendous competition amongst chemicals suppliers in the sector due to pressures imposed by customer companies as a result of macroeconomic conditions. ChemSystems had

already established that one of its most valuable assets besides innovative high quality products, is good service quality and technical knowledge. These are some of the reasons they remain amongst the leading specialty chemical suppliers in the pulp and paper industry. However, the formulation of an effective strategy in aligning their service initiatives with customer expectations can go a long way in cementing their leading position, and attaining a competitive edge over other specialty chemicals suppliers. To achieve this, there is a need for in-depth knowledge on level of service quality expected by customers from their chemicals suppliers. Equally important, are customer perceptions of service quality they receive from ChemSystems Paper division, as this will form base knowledge from where to improve relative to customer expectations. This knowledge comes from various studies of traditional and modern theories on service quality covered in this chapter.

Some of the key factors discussed in literature focused on precursors of good service quality, namely, customer orientation as a culture that spreads to the employees, employee expertise which encourages customers to rely on service providers and perceived service setting that stimulates positive employee and customer interaction. Also the outcomes of good service quality covered categories like positive behavioural outcomes from the customers which improve customer patronage and willingness to pay more, financial gain for the service provider and positive customer outcomes that lead to customer satisfaction, customer loyalty, perceived value and trust. The next chapter will provide a structure of a methodology that was used to uncover the critical information from the customers as discussed above.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research design is a critical component of any research process because it outlines various techniques adopted for the study. The main focus of this chapter is to explain the research strategy, design, approaches and together with data collection methods adopted during the research, including the design of data collection instrument used. The application of suitable instruments delivers accurate and reliable responses to data findings and subsequent interpretations.

For this study, the dimensions that influence service quality had to be measured accurately to uncover the perceptions and expectations of ChemSystems paper division customers. Additionally, these service quality dimensions presented had to be effectively computed by using suitable research methodology tests.

3.2 Objectives of the Study

The main objective of this paper was to investigate service quality perceptions of ChemSystems paper division customers. The primary focus was based on investigating the expectations and perceptions, in order to identify service quality gaps.

The specific objectives of the study were to:

- Identify customer perceptions of service quality delivered by ChemSystems paper division.
- Determine customer expectations of service quality required from specialty chemicals suppliers.
- Examine the gaps between customer perceptions and expectations with view to make recommendations on how to improve on any service quality gaps identified in the study.

The following are the hypotheses for the study:

H1: There is a statistically significant difference in the perceptions of service quality dimensions amongst the biographical data variables for ChemSystems customers.

H2: There is a statistically significant difference in the expectations of service quality dimensions amongst the biographical data variables for ChemSystems customers.

H3: There is a statistically significant difference in the service quality gaps for ChemSystems customers on specialty chemicals suppliers.

3.3 Research Strategy

The research strategy adopted for this study was a survey research as it provided the best fit in answering the research questions by adopting a SERVQUAL model questionnaire. A survey research is a system of gathering information from or about people, to describe, compare, or explain their knowledge, attitudes and behaviour (Bougie & Sekaran, 2013). It includes setting of objectives for data collection, study design, preparation of a reliable and valid survey instrument, administering of the survey, survey data managing and analysing, and lastly reporting the results (Bougie & Sekaran, 2013).

3.4 Research Design

The design of the research is considered a blueprint for data collection, data measurement and data analysis based on the research questions of the study (Bougie & Sekaran, 2013). The nature of the study can be either exploratory, descriptive, or causal, depending on the stage to which existing knowledge about the research topic has advanced (Bougie & Sekaran, 2013). Due to the extent which research work has been done on topics related to service quality and customer satisfaction, this particular study, adopted a descriptive approach.

Research designs can be categorised into five types, namely, experimental design, cross-sectional design, longitudinal design, case study design and comparative

design. For this study, a cross-sectional design was adopted and it allowed for data collection in a form of a survey technique that would be appropriate to finding answers to research questions.

3.5 Research Approach

The three main approaches used in research are, qualitative, quantitative and a mixed approach, which combines both qualitative and quantitative approaches. This research study adopted a quantitative approach as it offered an appropriate response to the research questions.

A quantitative approach is suitable for testing objective theories through scrutinising relationships among variables measured on instruments so that numbered data can be analysed statistically (Creswell, 2014). For this study, the variables measured are derived from the SERVQUAL questionnaire that assess differences between expectations and perceptions of service quality.

3.6 Data Collection Method

In order for the research questions to be fully addressed, both primary and secondary sources of data were used. Primary sources of data for the study were obtained through the survey questionnaire in a form of a SERVQUAL model. Past studies of similar nature from journals and other sources were also used as secondary sources of information to obtain better understanding of the service quality concept and to give insights on relevant application of the model.

3.6.1 Study Setting

The study was focused only towards existing customer companies of ChemSystems paper division in South Africa. There are currently 18 different paper mills (customers) where ChemSystems Paper division conducts its businesses. These paper mills are

mainly situated in three of South Africa's provinces, namely KwaZulu Natal, Gauteng and Western Cape. The customer companies' breakdown per province is 8 paper mills in KwaZulu Natal, 3 paper mills in Western Cape, and 7 paper mills in the Gauteng region.

3.6.2 Population, Sample Size and Sampling Technique

Since the study was based on business-to-business relations research, the relevant respondents were selected based on the following criteria:

- Direct interaction with ChemSystems representatives on their respective sites.
- Their exposure to service offerings from ChemSystems paper division.
- Their influence and responsibilities in decision making processes.
- Generic organisational structure of their respective organisations.

The population which was studied were the customer employees of all the 18 paper mills where ChemSystems paper division conducts its businesses. By adopting judgement sampling, the sample found to be relevant for the study was 92, as it was based on respondents' exposure to service initiatives provided by ChemSystems Paper division using the criteria above. The designations of these employees were Operations Managers (5), Production Managers (7), Process Engineers (12), Process Technicians (13), Production Supervisors (21) and Process Operators (34).

The process of sampling involves the selection of the right individuals, objects, or events as representatives of the entire population (Bougie & Sekaran, 2013). There are various types of sampling methods available, these include but are not limited to simple random sampling, complex probability sampling (systematic sampling, stratified random sampling, cluster sampling, area sampling and double sampling), and nonprobability sampling (convenience sampling, purposive sampling).

However, in this case, a census approach was adopted, whereby the questionnaires were distributed to the entire population for data gathering. A total number of respondents who participated in the study was 77 resulting in 83.7% response rate.

3.6.3. Primary Data - Questionnaire

As mentioned earlier under research strategy, this study adopted a survey research approach where a data collection instrument in a form of a SERVQUAL questionnaire is the principal tool of gathering primary data. For a descriptive or explanatory type of study, questionnaires are an efficient mechanism of primary data collection (Bougie & Sekaran, 2013). They are also generally considered less expensive, but time consuming compared to other mechanisms like interviews and observations (Bougie & Sekaran, 2013). Questionnaires are designed to collect large numbers of quantitative data, as it is an important requirement for the study for reliability and accuracy of information.

3.7 Design of Questionnaire

The full questionnaire for the study comprised of three sections: The first section was aimed at gathering demographic information of the respondents. The second and third sections of the questionnaire were the main sections where the statements were aimed at unearthing respondents opinions regarding expectations (second section) on service quality provided by specialty chemicals suppliers. The third section focused on perceptions of service quality provided by ChemSystems Paper division.

According to Bougie (2013), the design principles of a questionnaire should focus on three areas, which are:

- Wording of the questionnaire
- Planning of issues with regards to categorisation, scaling and coding of variables after receiving responses
- General appearance of the questionnaire

The variables selected for the study determines what kind of questions or statements are presented on the questionnaire. The language used in the questionnaire was simplified for better understanding across the spectrum of respondents. There are also principles of measurement that need to be followed when designing a questionnaire, as it is the case with wording of the questionnaire, to ensure that data collected is appropriate to answer research questions (Bougie & Sekaran, 2013). These principles refer to scales and scaling techniques for measuring concepts depending on the type of data to be obtained (Bougie & Sekaran, 2013).

The questionnaire was modified to include a sixth dimension of “Products” over and above the original five dimensions of Tangibles, Responsiveness, Reliability, Assurance and Empathy as originally developed by Parasuraman, et al., (1985). Therefore, the expectations and perceptions sections of the questionnaire each had 24 statements assigned to these dimensions for the customers to respond to using a 5-point weighted Likert Scale. The scale range was as follows:

1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree.

The service quality gap (Q) is the difference between Expectations (E) and Perceptions (P), and is computed by: $Q = P - E$

When Q is positive, it implies customer satisfaction with service initiatives and when negative it implies customer dissatisfaction.

The 24 statements of the questionnaire therefore were broken down per dimension as follows:

- Tangibles aspects are measured from statement 1 to 4
- Reliability aspects are measured from statement 5 to 9
- Responsiveness aspects are measured from statement 10 to 13
- Assurance aspects are measured from statement 14 to 17
- Empathy aspects are measured from statement 18 to 22
- Products aspects are measured from statement 23 to 24

Another principle that is as important as wording and measurement in designing a questionnaire is the appearance. It is necessary for a well-designed questionnaire to have an introduction that clearly discloses the identity of the researcher and expresses the purpose of the survey (Bougie & Sekaran, 2013). It is not only the introduction that

needs to be clear, the instructions and the manner in which questions are arranged with response alternatives also makes it easier for the respondents to answer the questions (Bougie & Sekaran, 2013). The questionnaires for this study were issued to the respondents with a covering letter explaining the topic of the study, research objectives, and detailed instructions on completing the questionnaire together with a consent form.

3.8 Validity, Reliability and Bias

The internal validity of the questionnaire is limited to the ability of the research instrument to measure what it is supposed to measure (Wong, et al., 2012). There are also several methods to measure the validity of the data. These include content validity, criterion-related validity and construct validity, and these are inter-related (Bougie & Sekaran, 2013).

Pretesting is regarded as the final step towards improving survey results. The aim for pretesting was to test and thereafter revise the data collection instrument, as may be required. Pretesting ensures that there is no ambiguity in the survey instrument. It allows the researcher to establish ways of increasing respondents' interest. It further allows for the identification of problems that may be evident in areas of question wording, content, and sequencing of questions. The pretesting for this survey was done by sending the questionnaire to firstly the Sales Director of ChemSystems paper division and, thereafter, to three Divisional managers to review. The pretesting proved to be advantageous as it assisted with clarifying ambiguities that were evident in the questionnaire.

To assess the internal consistency for the SERVQUAL items, a reliability test (Cronbach's Alpha) of all the items in the scale was computed for both expectations and perceptions. As a general rule, reliability values less than 0.6 are usually considered poor, and those in the range of 0.7 are considered acceptable, and over 0.8 range considered good (Bougie & Sekaran, 2013)

Bias normally occurs when there is imperfection in the survey's research design. Generally it is an unknown or unacknowledged error created during the design, measurement, sampling procedure or choice of the problem studied. Bias occurs when a systematic error is introduced into the sampling or testing by selecting or encouraging one outcome or answer over others. Selection or sampling bias was eliminated in this survey by sending the questionnaire to the total population of 92 employees of customer companies. Testing bias was also eliminated prior to sending the questionnaire during the pretesting stage. Analysis bias was eliminated by the utilisation of the SPSS system which analysed the data without any manipulation by the researcher.

3.9 Administering of the Questionnaire

Questionnaires can be administered in three ways; personally, mailed to respondents, or electronically administered (Bougie & Sekaran, 2013). A combination of personally administered questionnaire and electronically mailed were adopted for the study. This was mainly to ensure that all statements were clarified properly for the respondents, however it is usually difficult to achieve this for all respondents due to their availability and geographical locations, hence some of the questionnaires were e-mailed to respondents. Some of the advantages and disadvantages of these methods are briefly summarised in Table 3.1 below.

Table 3.1 Advantages and Disadvantages of Different Types of Questionnaires

Type of Questionnaire	Advantages	Disadvantages
Personally administered	<ul style="list-style-type: none"> • Can establish connection and motivate respondent • Can be less expensive when administered to groups of respondents • Almost 100% response rate ensured 	<ul style="list-style-type: none"> • Tendency for explanations to introduce bias. • Can take time and effort

Mail	<ul style="list-style-type: none"> • High anonymity • Can reach wide geographic regions • Respondents can answer at their convenience 	<ul style="list-style-type: none"> • Response rate low • Cannot clarify questions
Electronic	<ul style="list-style-type: none"> • Easy to administer • Can reach wide geographical locations • Fast delivery • Respondents can answer at their convenience 	<ul style="list-style-type: none"> • Computer literacy a must • Respondents must be willing to participate.

Source: Sekaran, U. & Bougie, R. 2013. **Research Methods for Business: A Skill-building Approach**. United Kingdom: John Wiley & Sons. p148.

3.10 Data Analysis Method

Since the nature of the study is quantitative, it requires statistical tools to analyse the data collected. Statistical analysis were adopted to address the research objectives and answer research questions. Descriptive statistical analysis focused on computing averages of data gathered from respondents, in order to facilitate clear graphical depictions of overall customer responses on service quality expectations and perceptions to address the first and second research questions:

3.10.1 Non-Parametric Analysis

To determine if the gaps between overall service quality expectations and perceptions were statistically significant, a Wilcoxon Signed-Rank Test was adopted, and it needed to answer the third research question:

What are the gaps between customer perceptions and expectations?

Other non-parametric analysis adopted for the study were Mann-Whitney U Test and Kruskal-Wallis Test. These were used to determine statistically significant differences in perceptions, expectations and gap scores with regards to demographic variables of

respondents, namely: *Gender; Industry Sector; Geographical Location* and *Years of Service in the industry*, as specified in the hypotheses for the study.

The Kruskal-Wallis Test is a non-parametric test equivalent to the one way ANOVA. This test allows the researcher to outline whether the population locations are different or not (Keller & Garciu, 2014). It is usually applied in statistical analysis with the following characteristics:

- The prime objective of the analysis is to compare two or more populations
- The data is not considered as normal but rather ordinal or interval
- The samples are known to be independent

This test was used in the analysis of results because the overall scores for perceptions and expectations were not considered as normally distributed.

The Mann-Whitney test is another non-parametric test of testing differences between groups when the population is not normally distributed. It can also be adopted when the samples from the population cannot be assumed to be equal in variability. Hence, it was adopted for the analysis with regards to the participants' gender.

Due to large volumes of data to be analysed, a software package for computing statistical analysis was required. For this study, the software package that was chosen to process the data was **Statistical Package of Social Sciences (SPSS)** Version 24 in conjunction with Microsoft Excel. The combination of these two packages facilitated analysis of data.

3.11 Ethical Considerations

When conducting a research, there are several ethical issues a researcher needed to address during data collection. These include; 1). Treating information given by the participants strictly confidential and also guarding their privacy; 2). Not forcing participants to take part in a survey; and 3). Self-respect and self-esteem of the participants should not be violated, amongst other factors (Bougie & Sekaran, 2013).

To this effect, ethical clearance was obtained, which among other things ensured that participants were made aware of their right not to participate should they wish so.

3.12 Summary

This chapter discussed an adopted methodology for conducting the survey. A quantitative data collection strategy was chosen for the study. The population considered was for the existing customers that had necessary exposure to evaluate service initiatives from ChemSystems Paper division. These customers are employees of various pulp and paper companies in South Africa where ChemSystems Paper division supplies products and services. Their responsibilities ranged from Process Operators to Operations Managers within their respective organisations, hence the need to adopt judgement sampling. The survey instrument used was a SERVQUAL questionnaire. The questionnaire was modified to be in line with the research objectives. The questionnaires were personally administered and some were emailed to the respondents. The results obtained were analysed using SPSS and Microsoft Excel. These software for analysis provided statistical tools that delivered valuable insight into the data collected. The following chapter will provide a comprehensive presentation of the results and discussion.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The most important part of a research study is the presentation and analysis of data. This is where primary data collected from a survey is meaningfully converted into useful information relating to the research objectives, research questions and subsequent recommendations are made based on the information extracted from that data.

Research questions included finding out what perceptions do customers have of the services provided to them by ChemSystems Paper division? Also, what general expectations customers normally anticipated from ideal specialty chemicals suppliers? Lastly, identification of any gaps between these two scenarios with the aim of recommending some initiatives to bridge the gaps between expectations and perceptions of service quality.

Therefore, this chapter will provide detailed analysis of results obtained from the survey that was conducted, in addition literature will be included in discussion of the results. The chapter will begin by providing the reliability analysis for the SERVQUAL items, then the summary of data from the demographic characteristics of respondents, which formed the first section of the questionnaire will follow. The analysis of the SERVQUAL dimensions using descriptive and inferential statistics for expectations, perceptions and gaps of ChemSystems Paper division's customers will also be presented and discussed.

4.2 Reliability Analysis

To assess the internal consistency for the modified SERVQUAL items, a reliability test (Cronbach's Alpha) of all the items in the scale was computed. Table 4.1 below illustrates the values of Cronbach's Alpha for expectations and perceptions. Looking at Table 4.1 below, the values were well above 0.6 for all dimensions except the "Products" dimension which had less values. This could be a result of a small number of items (2) in that dimension. For other dimensions, it can be concluded that all the items reflect a true measure of service quality, as literature suggested.

Table 4.1: Reliability Coefficient (Cronbach's Alpha)

			Cronbach Alpha if Item Deleted		Item Code
Dimension	Number of Items	Cronbach Alpha for Dimensions	Expectations	Perceptions	
Tangibles	4	0.749	0.735	0.723	TA1
			0.727	0.693	TA2
			0.745	0.717	TA3
			0.715	0.721	TA4
Reliability	5	0.838	0.834	0.810	RL1
			0.837	0.810	RL2
			0.830	0.823	RL3
			0.827	0.805	RL4
			0.836	0.812	RL5
Responsiveness	4	0.850	0.843	0.833	RN1
			0.850	0.827	RN2
			0.836	0.813	RN3
			0.843	0.809	RN4
Assurance	4	0.813	0.802	0.787	AS1
			0.800	0.778	AS2
			0.798	0.782	AS3
			0.792	0.796	AS4
Empathy	5	0.881	0.868	0.867	EM1
			0.871	0.857	EM2
			0.882	0.863	EM3
			0.880	0.862	EM4
			0.871	0.865	EM5
Products	2	0.619	0.653	0.528	PR1
			0.527	0.482	PR2

4.3 Descriptive Analysis - Demographic Characteristics

It is noteworthy that the Pulp and Paper industry in South Africa is still dominated by males. There was a total of 77 respondents who participated in the survey, 89.61% of them were male and only 10.39% of them were female, as illustrated by Figure 4.1 below. Ramseook-Munhurrin, et al., (2010) study also indicated a similar gap in gender demographic where the majority of the respondents were males. These results also show a similar pattern to the recent statistics from the World Economic Forum's Global Gender gap report (2016) where the number of females in the South African manufacturing sector is still relatively low, and the pulp and paper industry is not exempted from this trend.

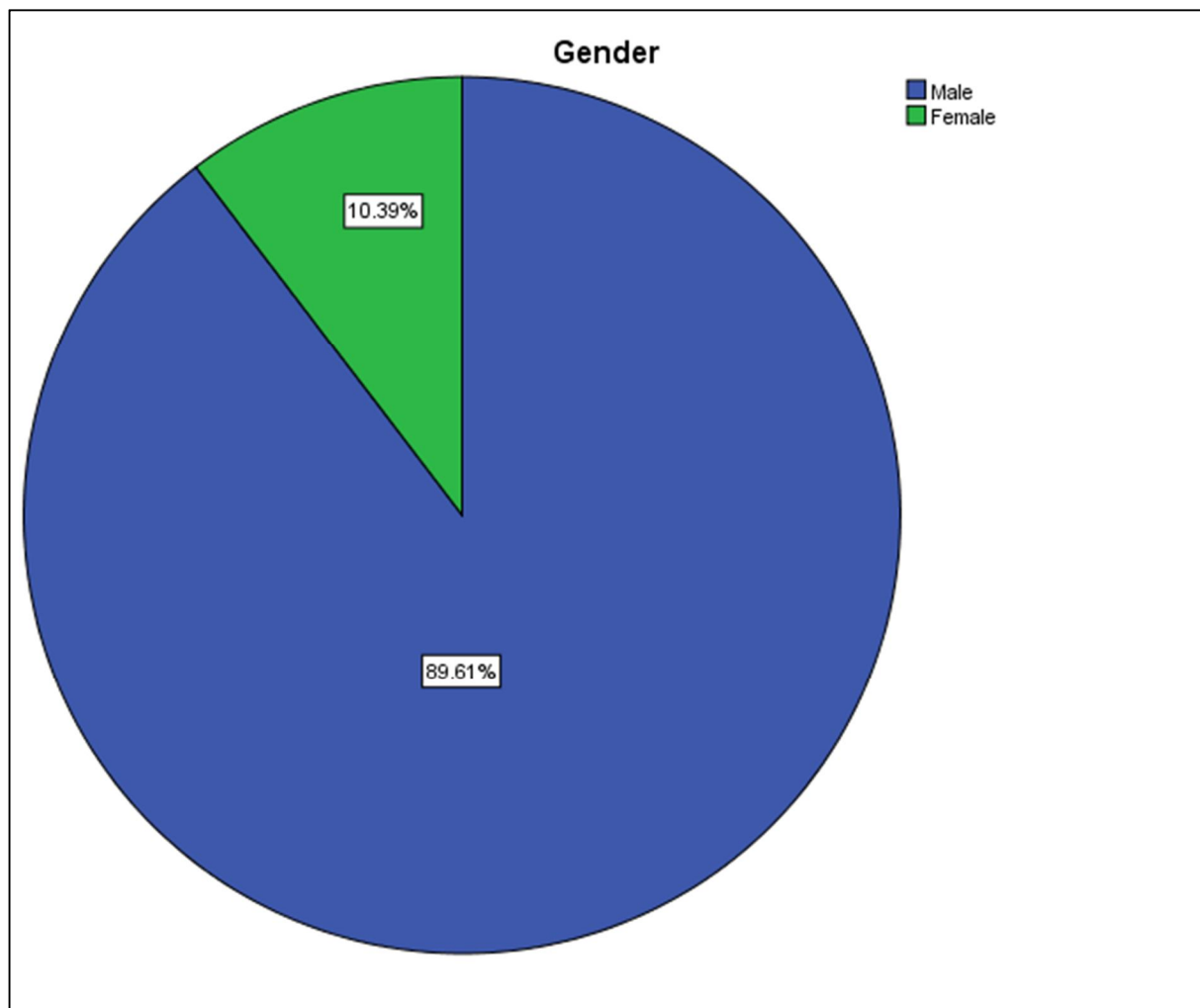


Figure 4.1: Gender of Respondents

Figure 4.2 below illustrates the total breakdown of respondents per industry sector. The results resonated with the current market split for ChemSystems where most of their customers are Tissue manufacturers. This is also an indication of a stable Tissue market in South Africa, compared to a decline in other sectors of the industry.

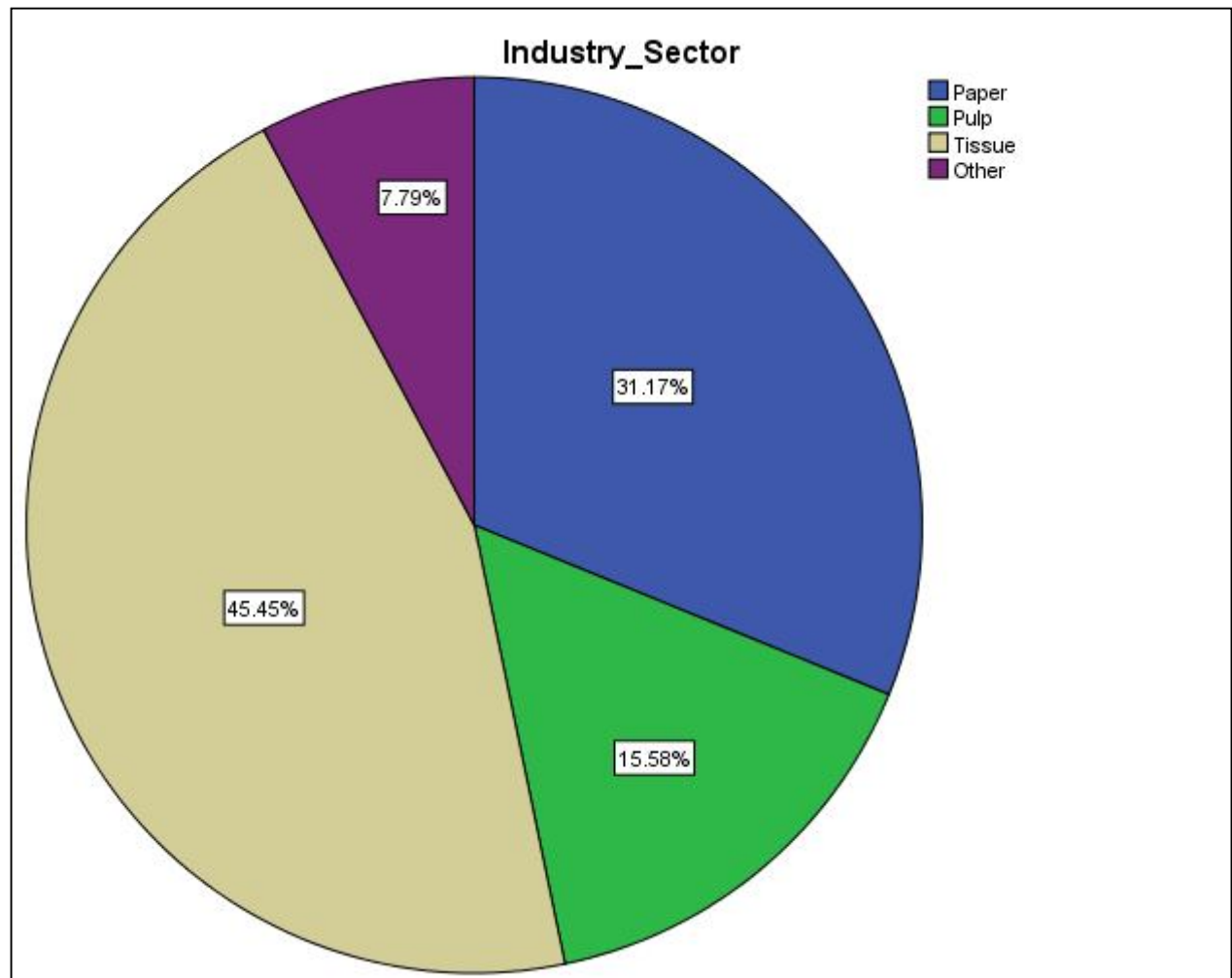


Figure 4.2: Industry Sectors

The spread of customers by geographical location is presented on Figure 4.3 below, where the majority of respondents were from KwaZulu Natal with 71.43%, Gauteng and Western Cape were 19.48% and 9.09% respectively. The spread of ChemSystems customers based on geographical location is relatively represented in these results. Most of the customer mills where ChemSystems conducts business are situated in the KwaZulu Natal province.

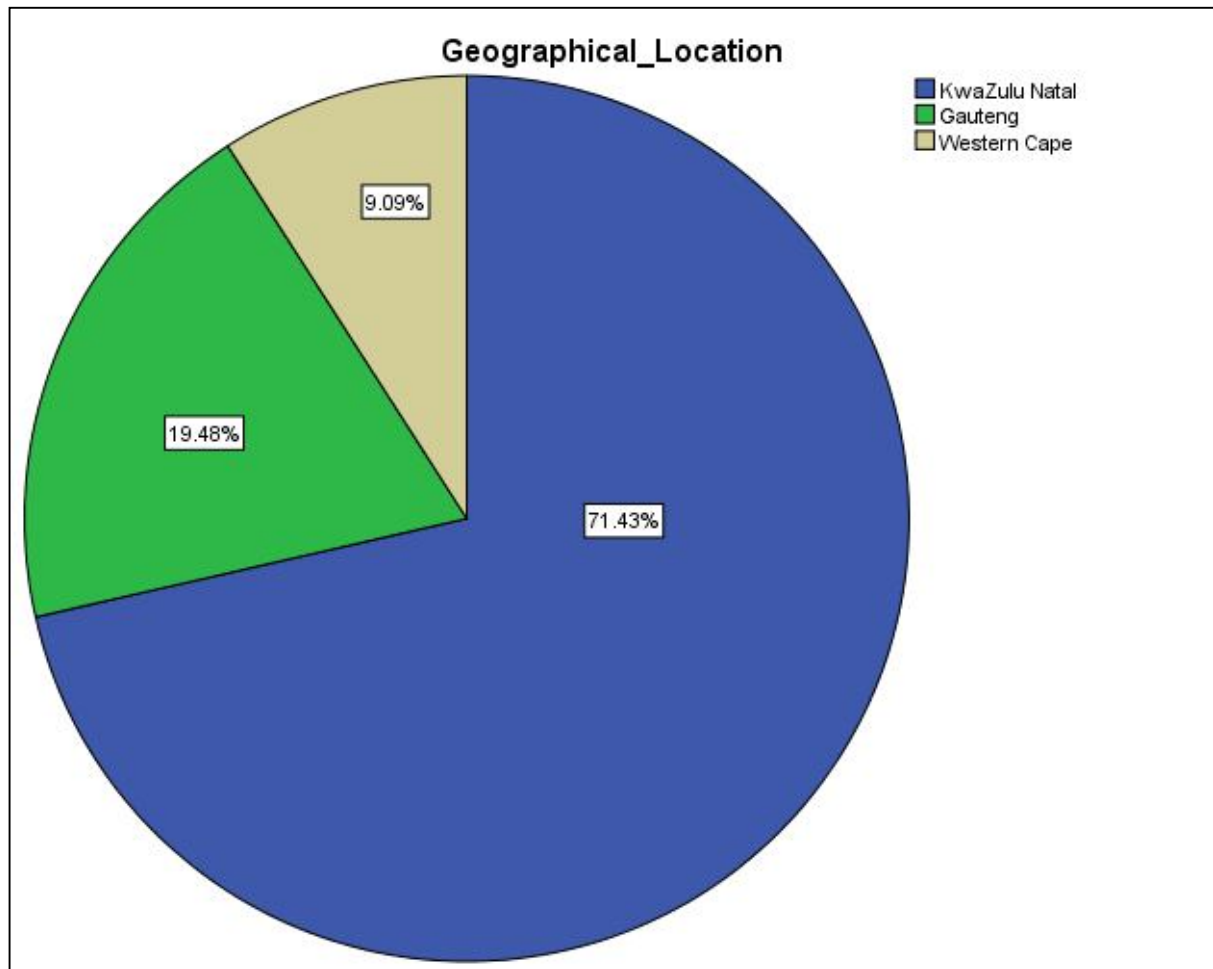


Figure 4.3: Geographical Location of Respondents

The breakdown of respondents based on the years of experience in the Pulp and Paper industry is presented on Table 4.2 below, where most of them (35.1 %) fell within a range of 11 to 20 years. Govender and Naidu (2011), registered a relatively similar percentage in their study, where the majority of the respondents had an average of 11 to 15 years tenure. The relatively low numbers of respondents with less than ten years in the industry might be related to a shrinking industry, as there is a limited number of new graduates entering the pulp and paper sector.

Table 4.2: Breakdown of Respondents Years of Service in the Industry

Years of Service		
	Frequency	Percent (%)
No Response	4	5.2
<5 Years	13	16.9
6 - 10 Years	11	14.3
11 - 20 Years	27	35.1
21 - 30 Years	16	20.8
31 - 40 Years	5	6.5
>50 Years	1	1.3
Total	77	100

4.4 Descriptive Analysis - Service Quality Dimensions for ChemSystems Paper Division

Section B and C of the questionnaire focused on the customers' expectations and perceptions of service quality, respectively. The results obtained from the responses of participants are presented and discussed below.

4.4.1 Tangibility Dimension

The Tangibility dimension referred to the appearance of physical facilities, equipment, personnel and communications material. The results for these determinants are presented on Figure 4.4 below. The participants' responses for all determinants indicated high expectations compared to the corresponding perceptions per dimension.

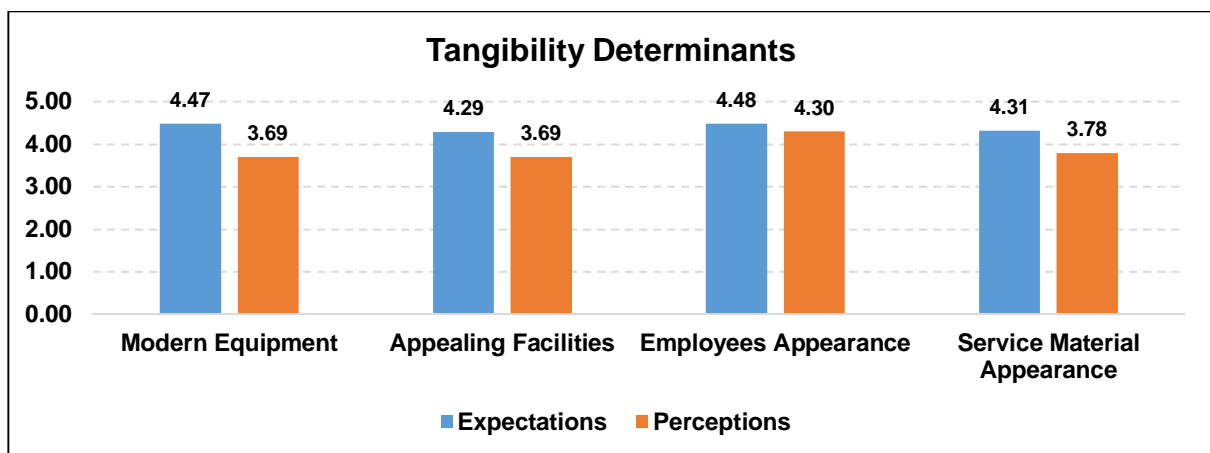


Figure 4.4: Responses on Tangibility

The results indicated that customers were not fully satisfied with the state of equipment, facilities and service materials from ChemSystems, as all their expectations exceeded their perceptions. These results were in contrast to those of Handrinos, et al., (2015) where all the perceptions items for Tangibility dimension exceeded customer expectations. However, the Tangibility results from the study were relatively similar to those of Asogwa, et al., (2014) where all the respondents' expectations of service quality for Tangibility exceeded their perceptions. The results from this feedback can hamper the corporate image of ChemSystems in the industry as it can have negative implications.

Literature and research emphasises the importance of equipment reliability in industrial operations like the paper industry. There is always a need to use more modern equipment that is appropriate to apply new technologies, in order to improve the quality of produced services and/or products, with operational safety and environmental sustainability (World Scientific and Engineering Academy and Society, 2009). Similarly, a lack in facilities preservation creates a few negative perceptions in the customers minds, meaning, it can imply ChemSystems' lack of attention to detail, but most importantly, it creates an impression of cost-cutting, which can be attributed to a limited number of acquired customers for ChemSystems business to be successful. This might lead to customers concluding that products or services offered by the company do not provide any value (Mack, 2017). Creating good corporate image through tangibles is critical for any organisation to strengthen its position and increase its competitiveness in the market. Competition has become tougher in recent years, such that all available methods are utilised to strengthen organisations positions in order to gain new customers and to enhance the ability to stand out amongst other competing organisations. Some of these methods include physical appearance of the service providers' employees. It is commonly understood that appearance often describe a person without words as conclusions can be drawn about personal characteristics and attitude towards work, amongst other things. Therefore, conveying the right image in line with corporate identity is of paramount importance for ChemSystems.

Servicing in business-to-business markets is different from that of individual customers as industrial customers like paper products manufacturers are usually more knowledgeable and always seek more information from specialty chemicals suppliers to influence their decisions. Purchasing decisions in these markets are usually complex and require more involvement from both parties in providing two-way exchange of information. Therefore, instruments used for marketing communications are important and they usually play more of an informational and supportive role than in traditional marketing communications to end consumers, where marketing communications are usually for creating brand awareness (Jerman & Završnik, 2012). This is another area of improvement for ChemSystems as the results obtained from the survey were not satisfactory.

4.4.2 Reliability Dimension

According to the SERVQUAL Model, Reliability is defined as the ability for the service provider to perform promised services dependably and accurately. The determinants for this dimension and customer responses are presented below on Figure 4.5.

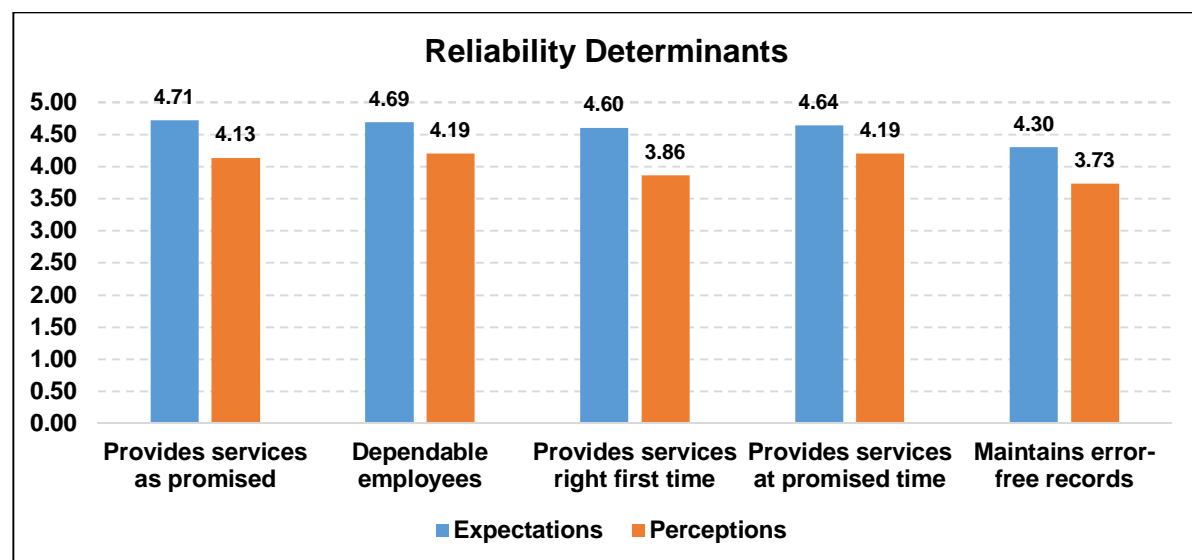


Figure 4.5: Responses on Reliability

A similar pattern compared to the Tangibility dimension was observed, where customer perceptions did not exceed expectations for all determinants, indicating customer dissatisfaction. The above results share similarity to those of Đonlagić and

Fazlić (2015) who also produced high expectations compared to perceptions for the Reliability dimension in their study. Reliability was confirmed as the most significant dimension during initial investigations of the model's inception. Therefore, it is critical for ChemSystems to ensure that the shortcomings identified in this dimension are addressed.

Literature also stressed the importance of this dimension as customers prefer to be associated, and do business with companies that keep their promises. However, the results presented for this dimension present a relatively negative impression from the customers' expectations compared to their perceptions. This feedback should be of concern for ChemSystems because as literature suggests, keeping promises is one of the most important principles for mutually beneficial service relationship (Weber, 2013). One of the determinants for this dimension focused on employees' dependability in handling customer service problems. According to the related marketing activities discussed by Gronroos (2009), this determinant can be classified under enabling promises or internal marketing, the rest of the determinants can be classified under keeping promises or interactive marketing. In *enabling promises*, the most important aspect is for service employees and systems to deliver on promises initially made to customers. To achieve this, service organisations should have employees with skills, resources and motivation to deliver on those promises (Weber, 2013). Service organisations like ChemSystems can easily make promises through improved external marketing, but if employees and systems do not allow them to deliver on those promises due to poor training, relevant tools and inappropriate internal systems, those promises can be almost impossible to keep. Therefore, enabling promises is a fundamental part in the process of making and keeping promises (Gronroos, 2009).

Keeping promises or interactive marketing is regarded as the dominant marketing function in building positive customer relationships, and it is most critical because it relies on the customer's point of view. It occurs during different encounters between organisations when services are produced and consumed (Weber, 2013). Promises are kept through activities and processes such as taking orders; deliveries; repairs

and maintenance; recovery of problems and mistakes. However, they cannot be successfully kept if the service provider's employees are not willing and motivated to fulfil them (Gronroos, 2009). From the customer's point of view, service relationships can be built from these encounters as they test the service provider's ability to deliver on promises made. These encounters can provide customers with a snapshot of ChemSystems abilities and quality which contributes to overall customer satisfaction and willingness to engage in future business (Weber, 2013). Like any other organisation, ChemSystems has different encounters that constitute service experience for their customers, starting from placing an order to delivering products and services as promised and subsequent billing of those products and services. Therefore, each encounter presents an opportunity for ChemSystems to demonstrate their capabilities as a quality specialty chemicals supplier by building trust and customer loyalty to form positive customer relationships.

4.4.3 Responsiveness Dimension

Responsiveness in the context of this service quality study referred to the willingness of ChemSystems to help customers and provide prompt service. The customer responses for this dimension presented in Figure 4.6 below indicated dissatisfaction from the customers as the expectations exceeded their perceptions of service quality provided by ChemSystems.

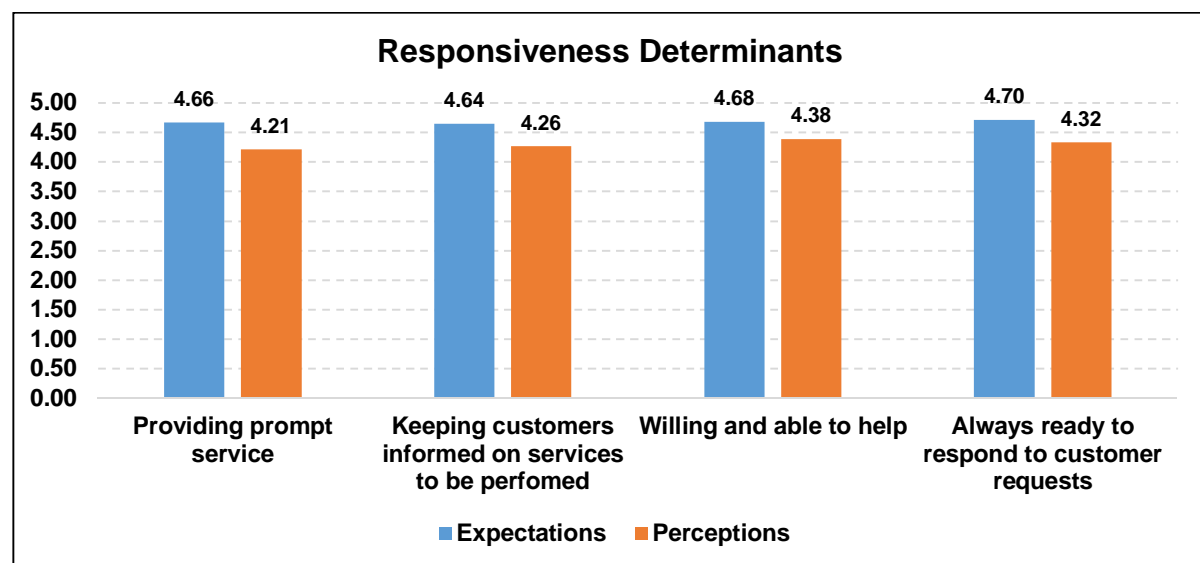


Figure 4.6: Responses on Responsiveness

The results obtained from the survey did not coincide with those for Handrinis, et al., (2015), where all the customer responses indicated satisfaction as all their perceptions exceeded expectations. However, Debasish and Dey (2015) in their study, had a similar pattern of results where all the items of Responsiveness yielded lower customer perceptions compared to their expectations. Similarly for this study, the results obtained from the respondents, once again did not paint a pretty picture for ChemSystems regarding this dimension.

Meehan and Dawson (2002) declared that customer responsiveness was about being fast and right. The determinants of customer responsiveness for this study also focused on these core elements. To further elaborate on this declaration, customer responsiveness offers customers what they need, want or don't yet know they want, accurately and insightfully. By doing this consistently and more swiftly than anyone else helps retain the value of the idea for the customer.

Being fast offers advantages of gaining credit with customers, forces the competitors to respond which makes it harder for their own unique initiatives to be developed. Being right also improves the chances against prolific competitors, as it includes a process where people not directly involved in particular projects offer an objective view through rigorous, fact-based but emotive debate (Dawson & Meehan, 2002). The outcome is when customers realise tangible improvements either in quality or cost as a result of feedback from service company initiatives.

Customer responsiveness is the foundation of interactions between customers and service providers like ChemSystems Paper division. If the attention is on customer needs and wants, it helps elevate the relationship a step further. It would be an indication that ChemSystems Paper division understands its business and its customers' circumstances well enough to suggest better options which can be cheaper or faster. For future survival in the industry, ChemSystems Paper division must become passionate with discovering unknown wants and needs to gain the opportunity to innovate in those areas thereby improving its competitive advantage. However, in

order to succeed, ChemSystems have to acknowledge that customer responsiveness is about being fast and right, not either of these elements individually.

4.4.4 Assurance Analysis

Assurance focused on the knowledge and courtesy of ChemSystems employees and their ability to convey trust and confidence to the customer. Figure 4.7 below presents the average responses from the participants in the survey, where service quality perceptions yet again did not exceed customer expectations, indicating customer dissatisfaction. Popli, et al., (2013) had similar results for Assurance dimension in their study. All of the perceptions items for this dimension did not exceed customer expectations.

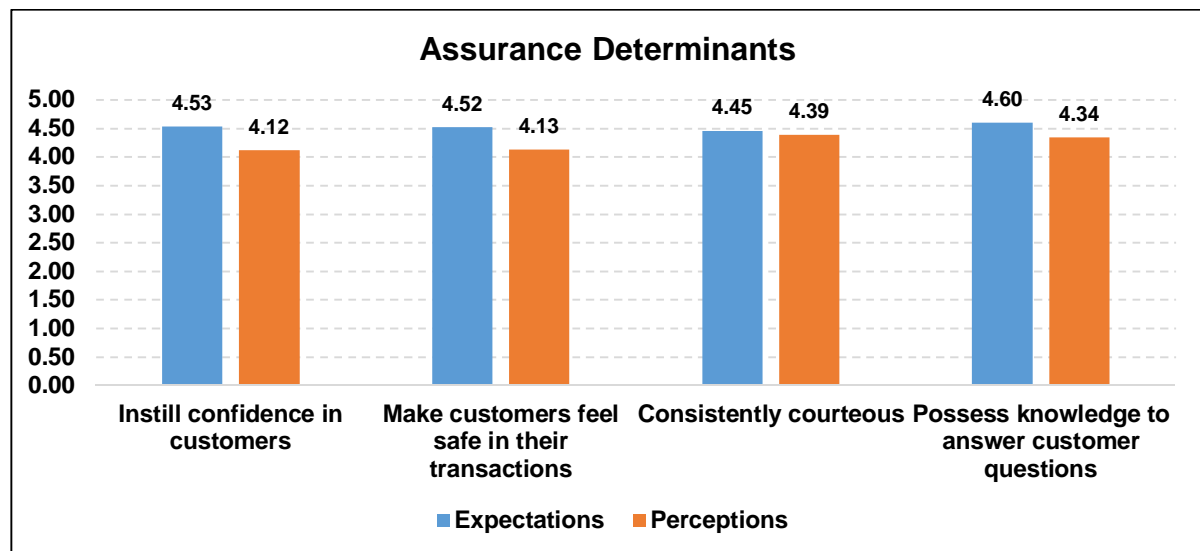


Figure 4.7: Responses on Assurance

Assurance in terms of service quality needs to be guaranteed by service providers, more especially in high technical complexity conditions like in the pulp and paper process. The role played by ChemSystems as a service provider to pulp and paper manufacturers is vital. As initially discussed in literature, high technical complexity environments, often require customers to rely on service provider's guidance through their experience, skills, knowledge and capabilities among other qualities (Black, et al., 2014). However, the results discussed indicate lacking abilities in terms of

matching or exceeding customer expectations for most of the determinants in this dimension.

Coincidentally, all of the determinants where there was customer dissatisfaction focused on core competencies of the organisation. Core competencies in Knowledge Intensive Business Services (KIBS) is a critical source of competitive advantage, and should be built on organisational capabilities and resources (Uysal, 2007). When a service provider demonstrates high levels of knowledge and skills, about the service, customers feel more comfortable with the service encounter, and it contributes to higher perceptions of service quality (Black, et al., 2014). This also improves the trust between customer and a salesperson, because trust is supported by the competence of the salesperson which includes skills, expertise and the ability to provide information that is valid and reliable.

In order to gain superiority in this highly competitive pulp and paper industry, ChemSystems should have an ability to recognise, develop, align and preserve particular resources that sets them apart from their competitors. In order to be different and dominant in the market, the organisation's capabilities and competencies should be stronger than those of the competition (Uysal, 2007).

4.4.5 Empathy Analysis

Empathy referred to a caring, individualised attention ChemSystems provides its customers. The results presented on Figure 4.8 below, indicate yet another set of high expectations from the respondents, compared to their perceptions. This was another indication that customers expected more Empathy from ChemSystems than what they currently perceived. Purcarea, et al., (2013) also realised a similar pattern of results,

however in their study the Empathy dimension also registered the highest gap score, which was not the case with this study.

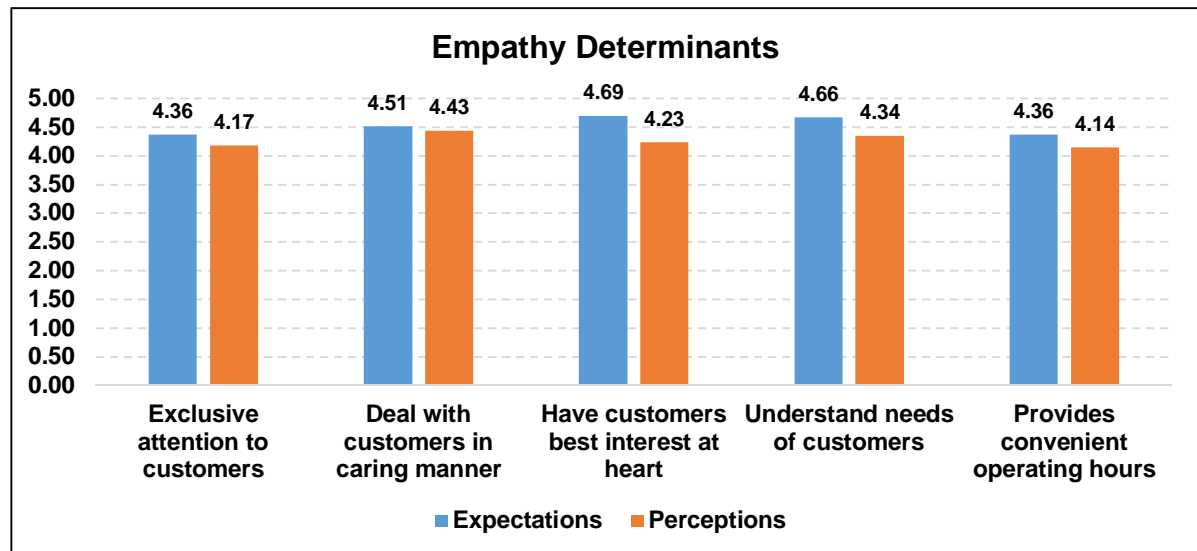


Figure 4.8: Responses on Empathy

In the sales and marketing literature, empathy is a social emotion which is considered an important variable in understanding business relationships, as it represents a degree of concern and interest for the customer. According to Aggarwal, et al., (2005), empathy plays an important role in improving customer attitudes towards salespeople which results in improved business relationship. They further suggest that two important characteristics a salesperson should have with a customer for a good relationship are empathy and listening skills (Aggarwal, et al., 2005). This is an important trait for ChemSystems salespeople to have as it can improve effective communication and understanding with customers to serve them better.

The primary interest for ChemSystems salespeople should be to develop long-term relationships with their customers for obvious economic benefits. These relationships are forged between individuals, therefore individual traits for a salesperson are pivotal in developing and maintaining relationships (Aggarwal, et al., 2005). Developing customer relationship takes time and over several transactions, during these encounters empathy may have a direct effect on individual transactions. It may also

contribute indirectly to other important constructs of a business relationship like trust and satisfaction based on previous experiences (Aggarwal, et al., 2005).

4.4.6 Products Analysis

The Product dimension was added to the survey to assess customer expectations and perceptions on products offering for ChemSystems Paper division. The results of which are depicted on Figure 4.9 below. Daniel and Berinyuy (2010) also registered similar results as the respondents in their study had high expectations compared to perceptions for products.

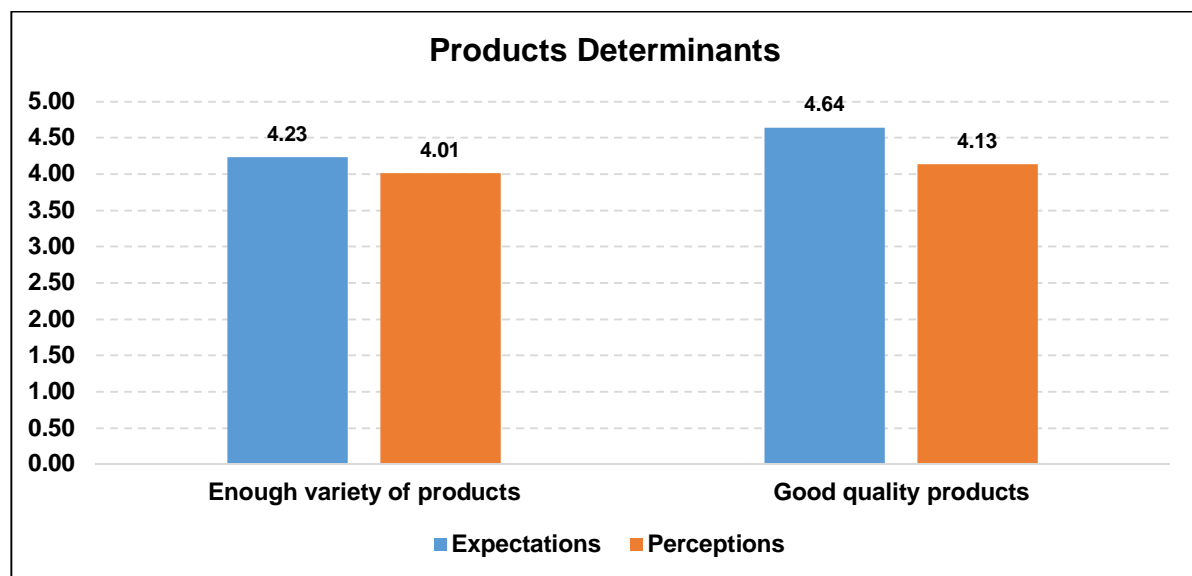


Figure 4.9: Responses on Products

The results from the survey indicated that customers expect more from ChemSystems on product quality and variety, as the perceptions did not meet expectations implying dissatisfaction.

Customer satisfaction is highly dependent on product quality as much as service quality (Kotler & Keller, 2012). There are various definitions of product quality obtainable today, as was discussed in the review of literature. Some authors have defined it as “conformance to standards”, “fitness for purpose” and “free from variations”.

However, the definition from the American Society for Quality incorporates all these by defining quality as “the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs” (Kotler & Keller, 2012:153). The importance of satisfying stated needs deals with knowing who the customers are and being able to identify their needs (Elassy, 2015). Therefore, by meeting or exceeding agreed customer requirements, customer retention is achieved, and it becomes difficult for satisfied ChemSystems’ customers to switch to the competition.

4.4.7 Overall Comparisons of Expectations, Perceptions and Gaps per Dimension

This data analysis was meant to respond to the research objectives of identifying customer expectations and perceptions of service quality, and also to examine if there are any gaps between the two scenarios. Figure 4.10 below, illustrates the average scores for all the dimensions, and it can be observed that for all dimensions of service quality the customer expectations exceeded perceptions, resulting in gaps that needed to be addressed.

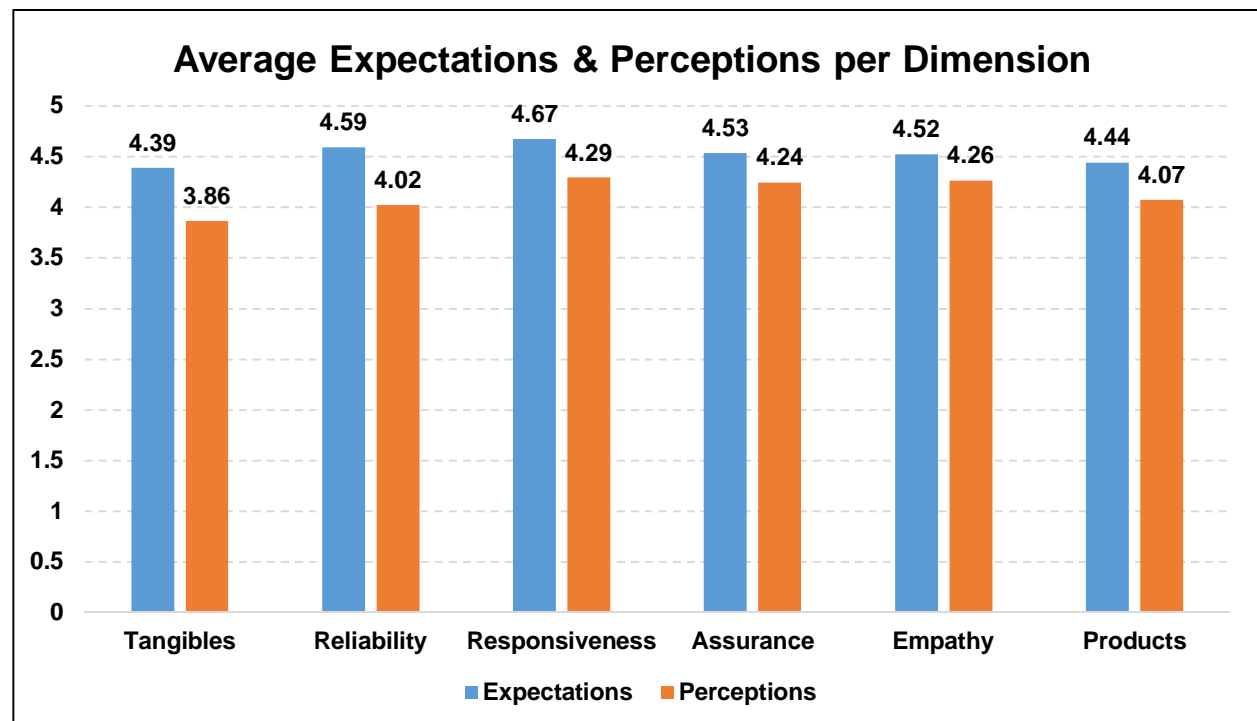


Figure 4.10: Average Expectations and Perceptions per Dimension

However, the significance of these gaps needed to be established statistically, in line with research question 3. Therefore, a Wilcoxon Signed-Rank Test for non-parametric analysis was conducted to verify the statistical significance of these gaps, together with other inferential statistics to respond to the research hypotheses.

4.5 Ranking by Order of Importance

The customer expectations scores also offered an opportunity to get a perspective of dimensions by order of importance, based on the customer responses, similarly for the perceptions. The ranking order of customer expectations and perceptions is illustrated on Table 4.3 below. The results presented indicated that there was a misalignment of priorities according to the customer responses. The customers rate Responsiveness highly in their priorities, which also matched their perceptions for ChemSystems. However, the second most important dimension according to their expectations was Reliability, and this dimension was fifth according to their perceptions for ChemSystems. According to Parasuraman, et al., (1985) the order of importance for the service quality dimensions lists Reliability as the most important, and Tangibles as the least important. Responsiveness, Assurance and Empathy come after the Reliability dimension respectively. These results show that the customer expectations are also in contradiction to the literature, so are their perceptions. However, in order for ChemSystems to satisfy their customers, efforts must be directed at realigning the perceptions to customer wishes (expectations).

Table 4.3: Summary of Scores by Ranking Order of Expectations and Perceptions

Ranking	Respondents Expectations	Respondents Perceptions
1	Responsiveness	Responsiveness
2	Reliability	Empathy
3	Assurance	Assurance
4	Empathy	Products
5	Products	Reliability
6	Tangibles	Tangibles

4.6 Non-Parametric Statistical Analysis

All the respondents' expectations exceeded perceptions of service quality for all dimensions as illustrated on Figure 4.10, hence they all yielded negative gap scores. Therefore, these gaps needed to be verified as statistically significant using a Wilcoxon Signed-Rank Test, on Table 4.4 below. For all dimensions $p < 0.05$, which meant the null hypothesis had to be rejected and therefore all the gaps were confirmed as statistically significant. This is an indication that for all service quality dimensions the level of service delivery needed to improve in order to achieve customer satisfaction. All these factors are critical points for the management of ChemSystems to focus on, as service is said to be quality only when it consistently conforms to customer expectations (Parasuraman, et al., 1985).

Table 4.4: Wilcoxon Signed-Rank Test Analysis for SERVQUAL Gap Scores per Dimension

	Perceptions	Expectations	SERVQUAL Gap	(p) Sig. (2-tailed)
Tangibles	3.86	4.39	-0.53	0.000
Reliability	4.02	4.59	-0.57	0.000
Responsiveness	4.29	4.67	-0.38	0.000
Assurance	4.24	4.53	-0.29	0.000
Empathy	4.26	4.52	-0.26	0.001
Products	4.07	4.44	-0.37	0.000

The respondents overall scores for expectations and perceptions were further analysed by comparing to demographic variables, using non-parametric analysis of Mann-Whitney U Test, and Kruskal-Wallis Test where applicable.

In response to the research hypothesis 3:

H3: There is a statistically significant difference in the service quality gaps for ChemSystems customers on specialty chemicals suppliers.

The Mann-Whitney U Test was used to compare the gap analysis with regards to respondents' gender.

The results presented in Table 4.5 below, indicated no statistically significant differences in gaps according to respondents' gender as the P-Value was greater than 0.05 for all dimensions. This meant there was no difference between the responses of both females and males. Asefi, et al., (2017) also registered no significant difference in the mean scores of service quality gap according to gender. Therefore, it can be confirmed that the results from the study do not suggest any differing service preferences from customers based on gender .

Table 4.5: Mann-Whitney Test - Gender

Mann-Whitney Test - Gender				
Dimensions	Gender		Z-Value	P-Value
	Rank Sum			
	Male	Female		
Tangibility	2668.500	334.500	-0.380	0.704
Reliability	2592.000	411.000	-1.668	0.095
Responsiveness	2602.000	401.000	-1.557	0.119
Assurance	2611.500	391.500	-1.353	0.176
Empathy	2612.000	391.000	-1.377	0.168
Products	2581.000	345.000	-0.645	0.519

Table 4.6 below highlights the Kruskal-Wallis Test results done to investigate the gap analysis with regards to industry sector. This test highlighted that there was no statistically significant difference for Tangibility, Reliability and Responsiveness across all industry sectors, as $P > 0.05$. However, there was a statistically significant difference for Assurance, Empathy and Products in the sector for "other" compared to "pulp"; "paper" and "tissue", where $P < 0.05$. ChemSystems has a wide range of products they supply in pulp, paper and tissue industry in South Africa, compared to other industries where a limited number of product applications are available. Limited product applications is associated to limited product options in case of changes in process conditions. Therefore, the differing responses from "other" industry respondents can be attributed to limited product applications in those industries compared to the rest of the paper, pulp and tissue industries, where there are many options available.

Table 4.6: Kruskal-Wallis Test – Industry Sector

Kruskal-Wallis Test - Industry Sector						
Dimensions	Industry Sector				Chi-Square	P-Value
	Mean Rank					
	Paper	Pulp	Tissue	Other		
Tangibility	41.750	41.380	39.540	20.080	4.907	0.179
Reliability	46.730	42.170	35.210	23.830	6.990	0.072
Responsiveness	46.330	42.830	33.590	33.580	5.819	0.121
Assurance	48.400	40.130	36.370	14.500	12.386	0.019
Empathy	47.230	38.420	37.290	17.250	9.962	0.006
Products	44.290	44.770	36.840	13.500	11.068	0.011

Table 4.7 below presents Kruskal-Wallis test for gap analysis according to respondents' geographical location. The results indicated no statistically significant differences ($P>0.05$) for all service quality dimensions based on location. The results obtained indicate that, regardless of location the customers' views on the level of service they want is similar, and so are their perceptions on the actual service they are getting from ChemSystems.

Table 4.7: Kruskal-Wallis Test – Geographical Location

Kruskal-Wallis Test - Geographical Region					
Dimensions	Geographical Region			Chi-Square	P-Value
	Mean Rank				
	KwaZulu Natal	Gauteng	Western Cape		
Tangibility	36.850	47.400	37.930	2.695	0.260
Reliability	36.630	42.200	50.790	2.921	0.232
Responsiveness	38.590	40.170	39.710	0.072	0.964
Assurance	35.720	46.970	47.710	4.302	0.116
Empathy	37.360	40.430	48.790	1.849	0.397
Products	37.150	40.180	45.790	1.115	0.573

Table 4.8 below highlights the Kruskal-Wallis Test results for gap scores according to respondents' years of service in the industry. Similarly to geographical location, the tenure of respondents in the industry indicated no statistically significant differences ($P>0.05$) on all service quality dimensions. These results are an indication of standard service quality requirements dictated by paper mills across all customer sites.

Regardless of years spent in the pulp and paper industry, the customers adhere to a standard requirement regarding service quality.

Table 4.8: Kruskal-Wallis Test - Tenure

Kruskal-Wallis Test - Tenure							
Dimensions	Tenure					Chi-Square	p-Value
	Mean Rank						
	<5 Years	6 - 10 Years	11 - 20 Years	21 - 30 Years	31 - 40 Years		
Tangibility	42.810	39.230	31.690	37.530	40.300	3.753	0.586
Reliability	39.150	43.770	33.500	35.500	36.300	2.976	0.704
Responsiveness	29.230	40.090	36.430	40.410	40.200	3.095	0.685
Assurance	36.540	49.050	31.830	37.560	35.300	5.750	0.331
Empathy	36.420	42.910	33.240	38.280	39.500	2.295	0.807
Products	38.330	40.590	32.700	36.840	40.300	1.965	0.854

In response to the research hypothesis 1&2:

H1: There is a statistically significant difference in the perceptions of service quality dimensions amongst the biographical data variables for ChemSystems customers.

H2: There is a statistically significant difference in the expectations of service quality dimensions amongst the biographical data variables for ChemSystems customers.

The comparison of mean scores for expectations and perceptions with regards to biographical data were also analysed using non-parametric analysis. The hypotheses test summary tables below highlight the relevant types of test used for each case, the null hypothesis, and the decision on whether to accept or reject the null hypothesis.

Table 4.9: Comparison of mean scores for expectations and perceptions with regards to Gender

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Expectations is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	.288	Retain the null hypothesis.
2	The distribution of Perceptions is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	.821	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.				

The results displayed on Table 4.9, indicated that the mean scores for expectations and perceptions were similar for both males and females ($p > 0.05$), hence the null hypotheses were retained.

These results however did not coincide with a study conducted by Mokhlis (2012), when it was concluded that male and female customers showed different behaviour on service quality preferences. The study further outlined that male respondents registered higher mean scores than their female counterparts.

Table 4.10: Comparison of mean scores for expectations and perceptions with regards to Years of Service

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Expectations is the same across categories of Years_of_Service.	Independent-Samples Kruskal-Wallis Test	.785	Retain the null hypothesis.
2	The distribution of Perceptions is the same across categories of Years_of_Service.	Independent-Samples Kruskal-Wallis Test	.810	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.				

Table 4.10 highlights that the mean scores for expectations and perceptions were similar for the years of service as $p > 0.05$, therefore the null hypothesis was retained.

According to Dawes (2009), when the continuance of the relationship lengthens, the customer develops more trust to the provider. This suggests that tenure has a positive impact towards the service provider offerings, which can heighten propensity to repurchase. However, the results obtained for this study did not indicate any influence on expectations and perceptions of service quality relating to customer tenure.

Table 4.11: Comparison of mean scores for expectations and perceptions with regards to Industry Sector

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Expectations is the same across categories of Industry_Sector.	Independent-Samples Kruskal-Wallis Test	.001	Reject the null hypothesis.
2	The distribution of Perceptions is the same across categories of Industry_Sector.	Independent-Samples Kruskal-Wallis Test	.871	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.				

Table 4.11 highlighted that the mean scores for perceptions across industry sectors were similar as $p = 0.871$, hence the null hypothesis was retained. However, the mean scores for the customer expectations differed as $p < 0.05$, resulting in the rejection of the null hypothesis.

The results are somewhat similar to a study conducted by Banerjee (2012), where it was concluded that there was a significant difference in customer expectations from different sectors. This implied that the level of customer expectations differed from all sectors. There was a similar finding from Table 4.6, where the service quality gaps were high for *assurance*, *empathy* and *products* for “other” sector.

Table 4.12: Comparison of mean scores for expectations and perceptions with regards to Geographical Location

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Expectations is the same across categories of Geographical_Location.	Independent-Samples Kruskal-Wallis Test	.232	Retain the null hypothesis.
2	The distribution of Perceptions is the same across categories of Geographical_Location.	Independent-Samples Kruskal-Wallis Test	.225	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.				

Table 4.12 highlighted that the mean scores for both expectations and perceptions did not differ based on geographical location of the customers, as $p > 0.05$ for both expectations and perceptions. Therefore, the null hypotheses were retained. These results suggested that geographical location of customers had no influence on how they expected and perceived service quality.

4.7 Summary

This chapter presented an overview of demographic data of the respondents that participated in the survey. The results relating to the expectations and perceptions of customers were presented and discussed. Descriptive statistical analysis were conducted on the data, and also a Wilcoxon Signed-Rank Test to test for significant gaps between customers' expectations and perceptions. Other non-parametric analysis of Mann-Whitney U Test and Kruskal-Wallis Test were also conducted in comparing the service quality expectations, perceptions and gaps relative to demographic variables. Based on the Wilcoxon Signed-Rank test results, it was confirmed that there was statistical significance on the service quality gaps. The other non-parametric analysis indicated no statistically significant differences on gender, geographical location and years of service for the respondents. However, there was a statistically significant difference on three dimensions for "other" industry sector:

Assurance, Empathy and Products. The next chapter will focus on conclusions and recommendations based on findings from this chapter.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This research focused on investigating service quality perceptions of ChemSystems Paper division customers. The research was conducted to identify key areas that will enable ChemSystems Paper division to develop a standard methodology and strategy to differentiate its service offering from other competitors in the South African pulp and paper industry. This chapter will review the research problems and establish if they have been addressed. It will further put forward some recommendations based on the vital conclusions linking to the objectives. The chapter will then conclude by providing some recommendations for future research studies.

5.2 Resolution of Research Problem

The competitiveness of the pulp and paper industry in South Africa has rendered specialty chemicals suppliers to become increasingly similar in their product offering. Therefore, differentiation through advanced product technology and product innovation to justify premium prices has proven difficult under current economic environment. Hence a need to formulate other strategies to improve customer satisfaction, retention and profitability. The challenges facing ChemSystems Paper division are not unique amongst other pulp and paper specialty chemicals suppliers in South Africa. Various circumstances have contributed to the current environment.

Technology advancement, stringent environmental regulations in the sector and other macroeconomic factors have resulted in a decline of the pulp and paper industry market. As such, ChemSystems needed to explore all available options to maintain any form of competitive advantage. Most of its differentiation strategies have always been product focused. In order to formulate new strategies on its service dimension, ChemSystems needed to identify critical gaps in current service quality from the feedback of its customers.

The research problem has been resolved since the significant customer expectations and perceptions of service quality with their corresponding gaps have been identified. These findings were discussed in the previous chapter and will be emphasised in the conclusion section to follow in this chapter.

5.3 Critical Outcome of the Research

While the research set out to identify service quality expectations, perceptions and gaps from the customers of ChemSystems Paper division, it was found that there was also a misalignment of priorities. When comparing the scores of customer expectations to perceptions for all service quality dimensions, the expectations in order of priority did not match the perceptions. This meant that ChemSystems has been focusing most of their efforts on initiatives and service practices that might not be priority according to their customers.

5.4. Conclusion

The results obtained from the SERVQUAL model analysis indicated that the customers of ChemSystems paper division consider the service quality dimensions of Responsiveness, Reliability, Assurance, Empathy, Products and Tangibles to be respectively important. It was found that the service quality gaps between customer expectations and perceptions in all dimensions were statistically significant. This is an indication that the customer expectations have not been entirely satisfied with the services offered by ChemSystems paper division. It was found that the demographic variables had no significant impact on a majority of perceptions, expectations and service quality gaps.

The service quality gaps were more for some dimensions and less in others. The maximum gaps were from the Reliability and Tangibles dimensions. The items from the Reliability dimension that attracted less satisfaction rates were focusing on

providing the services right the first time and providing services as promised. The other items that attracted less satisfaction rates from the Tangibles dimension focused on *modern equipment* and *visually appealing facilities*. These dimensions were then followed by Responsiveness, Products, Assurance and Empathy in sequence. The results from this research indicated that from the customers' point of view, all dimensions measured in the study were important in measuring service quality for ChemSystems paper division. They ranked Responsiveness as the most important dimension followed by Reliability, Assurance, Empathy Products and Tangibles. Overall it can be concluded that the customers are not completely satisfied with the quality of services from ChemSystems paper division.

5.5. Recommendations

Based on the findings of this research, the following recommendations are made:

- The state of equipment for products should be guaranteed to meet customer specifications with more emphasis on operational reliability and safety.
- Facilities like site offices should always be kept in good condition as they are an element of corporate image for ChemSystems.
- ChemSystems should redesign their website to be more informational for new and existing customers and to encourage interactive information exchange between supplier and existing or potential customers.
- All necessary resources required to deliver services to customers should be in place before promises are made to customers to enable prompt service delivery.
- Implementation of training programs for sales/service employees should be considered to close competency gaps identified and to enable service employees to confidently handle customer services problems.
- A Total Quality Management (TQM) system should be implemented where all members in the value chain of ChemSystems participate in process, products, services and culture improvements for long-term customer satisfaction.

- Continuous improvement on competitive advantage initiatives should be established to maintain dominance as the pulp and paper specialty chemicals supplier in South Africa and differentiate against competitors.

5.6 Limitations of the Study

The limitations encountered during this study were as follows:

- For a target sample and population size, some of the individuals had very limited time given their work schedule to participate in the survey. Therefore, some of the questionnaires were emailed to respondents with the aim of completing them at their convenience, however this method is also known for poor response rates.
- Some of the customer's businesses had undergone restructuring processes as a result of acquisitions, and decision-making structures had been modified, which had an impact on the sample size.

5.7. Recommendations for Future Research

The following were identified as areas of interest for future research:

- The relationship between service quality of specialty chemicals suppliers and customer satisfaction in the Pulp and Paper industry in South Africa. This can further identify the critical dimensions of service quality that have a large impact on improving customer satisfaction.
- The impact of service quality on profitability of specialty chemicals suppliers in the pulp and paper industry. To ascertain the economic impact of service quality improvement for the service organization.
- A mixed-method investigation of service quality expectations and perceptions of pulp and paper manufacturers in South Africa. During the investigation, some of the important responses not accommodated by the SERVQUAL questionnaire can be identified.

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