CUSTOMER RELATIONSHIP MANAGEMENT FROM THE PERSPECTIVE OF A TRACKLESS MINING EQUIPMENT MAINTENANCE ORGANISATION

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ABSTRACT

This study deals with Customer Relationship Management (CRM) of a department of an Original Equipment Manufacturer (OEM) of trackless mining equipment. The study was done from the service deliverer's perspective. The aim of the study was to determine an effective Customer Satisfaction Index (CSI) in order to assist the OEM to deliver superior satisfaction to its customers in the Aftermarket service delivery environment. It also aims to determine what the OEM needs to do to meet the customers' demands in order to develop a meaningful relationship for both the customer and the service provider.

The gap in the perceptions of the customers and the perceptions of the managers of the OEM's Aftermarket service contracts were identified, to reveal the Key Performance Areas (KPAs) for improvement. In order to reveal these KPAs, a literature study was conducted, as a first part of the study. The literature study also helped to create a better understanding of CRM, superior customer value and satisfaction in the service environment.

The second part of the study consisted of an empirical investigation. Customers and managers of the OEM's Aftermarket service contracts had to complete questionnaires. Completed questionnaires were received from the total population of the customers and managers. The analysis of the database that was compiled from the questionnaire's responses was done by using *Microsoft's ® Office 2007 Suite*, supported by Levine, Stephan, Krehbiel and Berenson's textbook *Statistics for Managers Using Microsoft ® Excel.*

The analysis identified a significant difference in seven out of the seventy-eight aspects, in the responses from the customers' perceptions versus the perceptions of the OEM's managers. The analysis also provided a base for the CSI. The combination of these aspects and the CSI exposed five KPAs which need to be improved by the service provider to meet the customers'

demands. Improvement of the exposed five KPAs will assist to develop a meaningful relationship for both the customer and the service provider.

This study recommended that the OEM develops an action plan based on the climate survey that was done in 2008 in the company and that the OEM improves the communication to the customers related to the OEM remuneration strategy. Furthermore, it was recommended that the importance of the information provided is emphasised by changing the reporting lines, that the defects with regard to the service exchange components' repairs are reported according to the ISO9001 system. A further recommendation is that the benefits to the customer to promote the OEM's service contracts should be communicated to the customer. Lastly, training to the OEM's managers to manage a service level agreement (SLA) successfully was recommended.

Keywords: Customer Relationship Management, Customer Satisfaction Index, Customer Satisfaction Measurement, Customer Segmentation, Customer Value, Perceptions, Service Environment, Strategic Framework.

OPSOMMING

Hierdie skripsie handel oor die Kliënteverhoudingsbestuur van 'n departement van 'n vervaardiger van spoorlose mynboutoerusting. Die studie is gedoen vanuit die perspektief van 'n diensleweraar. Die doel van die studie is om 'n effektiewe kliënte-satisfaksie-indeks te ontwikkel waarmee die vervaardiger gesteun kan word in die voortreflike bevrediging van hul kliënte, in die na-verkope diensleweringsomgewing. Die verdere doel van die studie is ook om vas te stel wat die vervaardiger te doen staan, ten einde aan 'n kliënt se verwagtings te voldoen en sodoende 'n betekenisvolle verhouding te ontwikkel vir beide die kliënt en die diensleweraar.

Die verskil in die persepsies van die kliënte en die persepsies van die bestuurders van die vervaardiger se diensleweringskontrakte is geïdentifiseer, ten einde die sleutel-prestasieareas vir verbetering bekend te maak. 'n Literatuurstudie is gedoen as eerste deel van die studie om insig te verwerf aangaande kliënteverhoudingsbestuur, voortreflike kliëntewaarde en die bevrediging van behoeftes in die dienslewerings-omgewing.

Die tweede deel van die studie het bestaan uit 'n empiriese ondersoek. Kliënte en bestuurders van die vervaardiger se diensleweringskontrakte is gevra om vraelyste te voltooi. Voltooide vraelyste is vanaf die totale populasie van kliënte en bestuurders ontvang. Die analise van die databasis wat saamgestel is vanuit die antwoorde van die vraelyste, is gedoen deur gebruik te maak van *Microsoft's ® Office 2007 Suite* en is ondersteun deur Levine, Stephan, Krehbiel en Berenson se handboek – *Statistics for Managers Using Microsoft ® Excel.*

Volgens die analise is 'n beduidende verskil geïdentifiseer in sewe van die agt-en-sewentig aspekte vanuit die antwoorde van die kliënte se persepsies, teenoor die persepsies van die vervaardiger se bestuurders. Die analise het ook 'n grondslag bepaal vir die kliënte-tevredenheidsindeks. Die kombinasie van die sewe aspekte en die kliënte-tevredenheidsindeks het vyf

sleutelprestasieareas uitgewys wat deur die diensverskaffer verbeter moet word, ten einde te voldoen aan die vereistes van die kliënte. Verbetering van die vyf sleutelprestasieareas sal meewerk tot die ontwikkeling van 'n betekenisvolle verhouding vir beide die kliënte en die diensverskaffer.

Die gevolg van hierdie studie is dat die volgende aanbevelings gemaak word:

- Dit word aanbeveel dat die vervaardiger 'n aksieplan saamstel om die werknemer tevredenheid te verbeter aan die hand van die klimaatstudie wat in 2008 in die maatskappy gedoen is. Verder is dit nodig dat die vergoeding-strategie van die vervaardiger met die kliënt gedeel word.
- Die belangrikheid van die inligting wat aan die kliënt voorsien word, moet beklemtoon word deur die kanale wat gebruik word, te verander.
- Om die herstelwerk aangaande die gebruikte komponente te verbeter, word dit voorgestel dat die struktuur van die ISO9001 gebruik word om enige defekte te rapporteer.
- Die voordele wat 'n kliënte kan ervaar deur die dienstekontrakte te bevorder, moet aan die kliënte gekommunikeer word.
- Laastens word aanbeveel dat die bestuurders van die vervaardiger opgelei word om 'n diensvlakooreenkoms suksesvol te bestuur.

Sleutelwoorde: Kliënteverhoudingsbestuur, Kliënte-tevredenheidsindeks, Kliënte-tevredenheidsmeting, Kliënte-segmentering, Kliënte-waarde, Persepsies, Diensverskaffingsomgewing, Strategiese Raamwerk.

PREAMBLE

This dissertation should be informative to managers who are interested in improving their Customer Relationship Management (CRM) in a service environment. Further, it would be of interest to customers who receive service, to get a better understanding of expressing their expectation and to improve the management of their relationship with their suppliers. Due to the integration of the study field of marketing with statistics, academics can benefit from the principles applied in this study. Entrepreneurs who intend to start a new venture could benefit, as this study also provides a strategic framework to apply CRM in a practical way.

The purpose of this study is to provide a proper understanding in the field of CRM, from the perspective of the service deliverer in the trackless mining equipment environment, in the South African mining industry.

An empirical study was conducted after a comprehensive literature study regarding the subject of CRM had been done. The results of the study were applied to the service contracts of a major Original Equipment Manufacturer (OEM) of trackless mining equipment in South Africa.

The study reveals that the OEM needs to focus on employee satisfaction, improvement regarding the quality of their service exchange component repairs, the elevation of the importance of the information provided to the customer and the training of the managers with regard to managing a service level agreement with their direct customers. Further study to improve the employee satisfaction is also required.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

CRM	–	Customer Relationship Management
CSI	–	Customer Satisfaction Index
OEM	–	Original Equipment Manufacturer
KPA	–	Key Performance Area
KPI	–	Key Performance Indicator
SLA	–	Service Level Agreement

CHAPTER 1 - INTRODUCTION

1.1 INTRODUCTION

This study deals with Customer Relationship Management (CRM) of a department of an Original Equipment Manufacturer (OEM) of trackless mining equipment. The study was done from the service deliverer's perspective in the hardrock mining industry of South Africa. Kotler and Armstrong (2006:13) define CRM as the overall process of building and maintaining profitable customer relationships by delivering superior customer value and satisfaction. This study aims to determine an effective Customer Satisfaction Index (CSI) to assist the OEM to deliver superior satisfaction to its customer in the Aftermarket service delivery environment. It also aims to determine what the OEM needs to do to meet the customers' demands in order to develop a meaningful relationship for both parties.

The need for CRM, the primary objective, the research methodology and the limitations of this study are explained in this chapter.

1.2 PROBLEM STATEMENT

To enable the OEM of trackless mining equipment to deliver superior customer value and satisfaction in the Aftermarket service delivery, the gap between the perception of the customers and the perception of the internal stakeholders of the service delivered, must be determined to reveal the Key Performance Areas (KPAs) for improvement, to meet customer demands.

1.3 PRIMARY OBJECTIVE

The primary objective of this document is to determine the KPAs for improvement with regard to satisfying the demands of the customer, measured by means of a CSI, by the OEM of trackless mining equipment. The aim of the OEM is to create a long term profitable relationship with hardrock mining operations in the South African mining industry. By identifying the KPAs for improvement, the gap between the perception of the customers and

the perception of the internal stakeholders of the service delivered, can be closed.

1.4 SECONDARY OBJECTIVE

The secondary objective is to create a proper understanding of CRM and to develop a CSI that will be used in an ongoing basis to determine the progression to the goals of delivering a profitable relationship, that add superior value and customer satisfaction.

"What gets measured gets done", is the saying in the business world. In order for a measure to have any impact, a reference point is required – a standard according to which an employee or company can judge performance.

Van Looy, Gemmel and Van Dieronck (2003:127) indicated that the most common benchmarks are:

- Development over time;
- The different organisational units; and
- Competition.

Evolution over time is the best indicator of whether an organisation's customer focus efforts are paying off. Therefore, most customer satisfaction measurements access the rate of improvement over time (Van Looy *et al.*, 2003:127).

1.5 CAUSAL FACTOR TO THE STUDY

After the customer purchased equipment from the OEM, a *service* is provided to support and maintain the equipment. This study is done from the *service* deliverer's perspective.

1.6 RESEARCH METHODOLOGY

The methodology followed in this study consists of two parts, namely an extensive theoretical literature study of the relevant literature and an empirical study by means of two questionnaires.

1.6.1 Literature study

The aim of the literature study is to gain theoretical knowledge of:

- Customer Relationship Management; and
- Superior customer value and satisfaction in a service environment.

1.6.2 Empirical study

The empirical study consists of two questionnaires, of which the first will be directed towards the customers and the second to the contract managers of the service contract department of a major OEM of trackless mining equipment in South Africa. The empirical study is done from the service deliverer's perspective to determine the gap in the perceptions of the customers and the perceptions of the contracts managers of the service delivered in the Aftermarket via the OEM's service contracts.

The response from the questionnaires will be used to create a database. The database will be analysed by making uses of the *Microsoft's Office 2007 suite*. Many of the functions required to analyse the database are already built in to the software. Furthermore, by making use of the theory as described in *Statistics for Managers Using Microsoft® Excel* by Levine, Stephan, Krehbiel and Berenson (2005), this common platform across the company, will be programmed to do the necessary calculations.

1.7 SCOPE OF THE STUDY

The scope of this document will mainly focus on the service contract customers of a major OEM of trackless mining equipment in the hardrock South African mining industry.

1.8 DEFINITIONS AND TERMINOLOGY

To familiarise the reader with the environment, the following terminology is defined as a basic guideline within the context of this dissertation:

Aftermarket – Equipment is sold to the mining industry. Once the equipment was sold, it must be supported and maintained for the economic life of

the equipment. The support and maintenance of the equipment from the perspective of the OEM is done by the Aftermarket department. The Aftermarket department consists of parts supply, branches, workshops, field services, product support, training and service contracts.

Service Contract – As part of the OEM's Aftermarket, a service is provided where the equipment sold is maintained and repaired at the customer's premises on a fulltime basis. The service contract can include stockholding of parts on the customer's premises, labour to perform the maintenance, planning and recording keeping and management of the total maintenance function.

South African mining industry – The organisations that are operating within the boundaries of South Africa that are related to the exploration and extraction of ore from the earth with the aim to create wealth by beneficiation and/or selling minerals or metals is part of the South African mining industry.

Trackless Mining Equipment – In the mining industry, equipment can be classified into conventional in-stope mining equipment (i.e. jack hammers, scrappers and scrapper winches, and more), track bound equipment (i.e. locomotives, train trucks known as "hoppers", track bound loaders, and more) or trackless mining equipment. Trackless mining equipment are mostly – but not necessarily – diesel driven, driving on rubber tyres or crawlers. Typical trackless mining equipment include (but are not limited to) front-end loaders, load-haul-dumpers, trucks, mechanised drillrigs, mechanised roofbolters, and more.

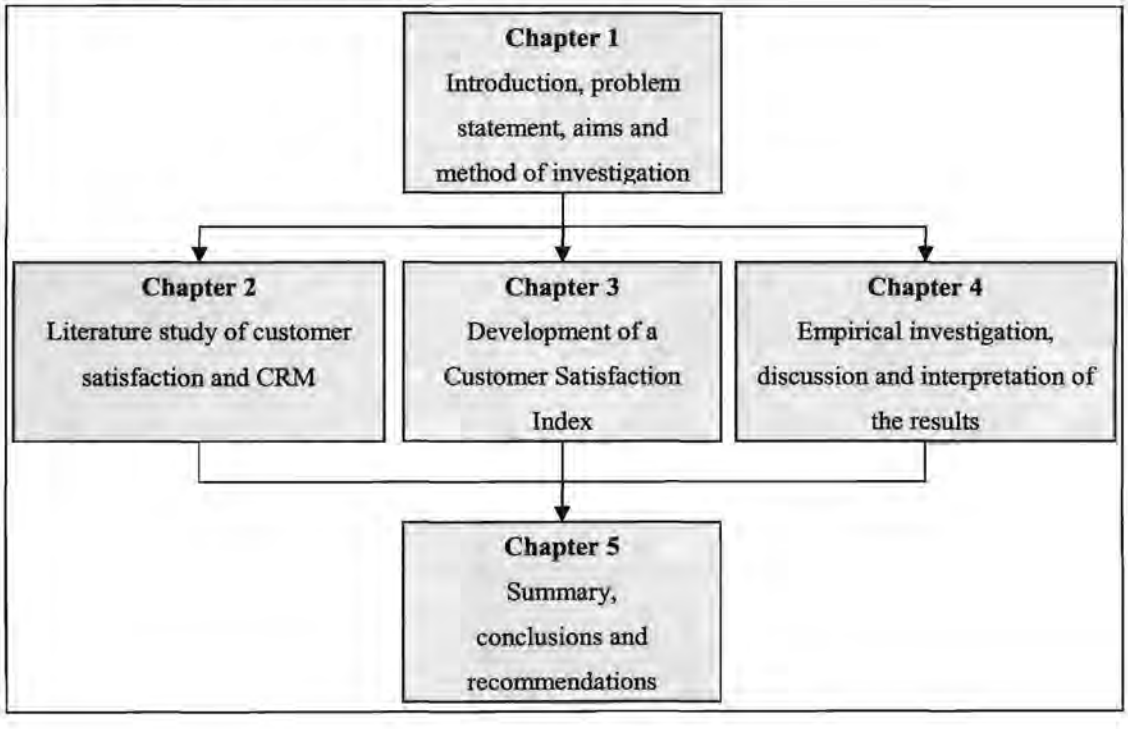
1.9 LIMITATIONS

The OEM sells equipment to the mining industry in South Africa. In addition, a service known as a service contract is offered to the customer to maintain and repair the equipment for the first economical life. The focus of this study is limited to the customers of the OEM's Aftermarket service contracts in South Africa.

1.10 CHAPTER CLASSIFICATION

The classification of the chapters of this study is illustrated in Figure 1.1: Chapter classification below:

Figure 1.1: Chapter classification



The first chapter introduces the area that will be studied in this dissertation, providing the problem statement and giving an indication of the aims of the study and the methodology that will be used, to investigate the area of discussion. The second chapter provides a literature study of customer satisfaction and CRM. A CSI is developed in Chapter 3. The index developed

in Chapter 3 will be practically applied, with the empirical investigation, discussions and interpretation of the result, done in Chapter 4. The study is concluded in Chapter 5 with some recommendations and a summary.

1.11 ETHICAL ASPECT

The OEM of the trackless mining equipment does not want their name to be revealed, so that competitors will not be able to gather sensitive information about the company. For this reason, in this study, reference will only be made to the "OEM".

CHAPTER 2 - CUSTOMER RELATIONSHIP MANAGEMENT AND CUSTOMER SATISFACTION

2.1 INTRODUCTION

Reading through the many articles and literature, the definition of CRM ranges from a simple database system to a complete relationship management tool, that enhance customer loyalty by creating superior customer satisfaction.

The BusinessLink Business Service centre in Canada defines CRM as a broad category of concepts, tools, and processes that allows an organisation to understand and to serve everyone with whom it comes into contact. The BusinessLink Business Service centre (2008:1) describes CRM on the World Wide Web as gathering information that is used to serve customers.

This chapter explains the concept of CRM in detail. Furthermore, the service environment is discussed and superior customer value and satisfaction, based on a literature study of the subject, is defined.

2.2 CUSTOMER RELATIONSHIP MANAGEMENT

2.2.1 Defining Customer Relationship Management

Trying to define Customer Relationship Management (CRM) by reading various literature pieces on the subject, it is clear that academics are not all at one on the definition of CRM. Payne (2006:19) quotes eleven different writers, each with their own definition. The definitions quoted by Payne are:

- CRM is a business strategy combined with technology to effectively manage the complete customer life-cycle;
- A term for methodologies, technologies and e-commerce capabilities used by companies to manage customer relationships;
- CRM is an e-commerce application;

- A comprehensive strategy and process of acquiring, retaining and partnering with selective customers to create superior value for the company and the customer;
- CRM is about the development and maintenance of long-term mutually beneficial relationships with strategically significant customers;
- Numerous aspects, but the basic theme is for the company to become more customer-centric; methods are primarily Web-based tools and Internet presence;
- CRM can be viewed as an application of one-to-one marketing and relationship marketing, responding to an individual customer, based on what the customers tell you and what else you know about that customer;
- A management approach that enables organisations to identify, attract and increase retention of profitable customers by managing relationships with them;
- It involves using existing customer information to improve company profitability and customer service;
- Seeks to provide a strategic bridge between information technology and marketing strategies aimed at building long-term relationships and profitability. This requires information-intensive strategies; and
- Data-driven marketing.

The origin of CRM, according to Payne (2006:6), can be found in the principles of relationship marketing. Relationship marketing followed transactional marketing because of a change in market demand and an increase in competitive intensity. Transactional marketing is based on the 1950s model of the '4P's' – Product, Price, Position and Promotion. According to Rangarajan (2007), these '4P's' can be expanded for service to the '7P's', by adding People, Process and Physical evidence. The challenge to the marketer was to have the correct mix of these 'P's' to maximise sustainable profits. To maintain the sustainability of the profits, the marketers had to develop relationships with all the stakeholders. This development evolved into relationship management. Myers (2000:4) stated that top management in many companies, in the late 1980s had a need for better means of staying in

touch with their customers, than what relationship management offered. This need of top management evolved into CRM.

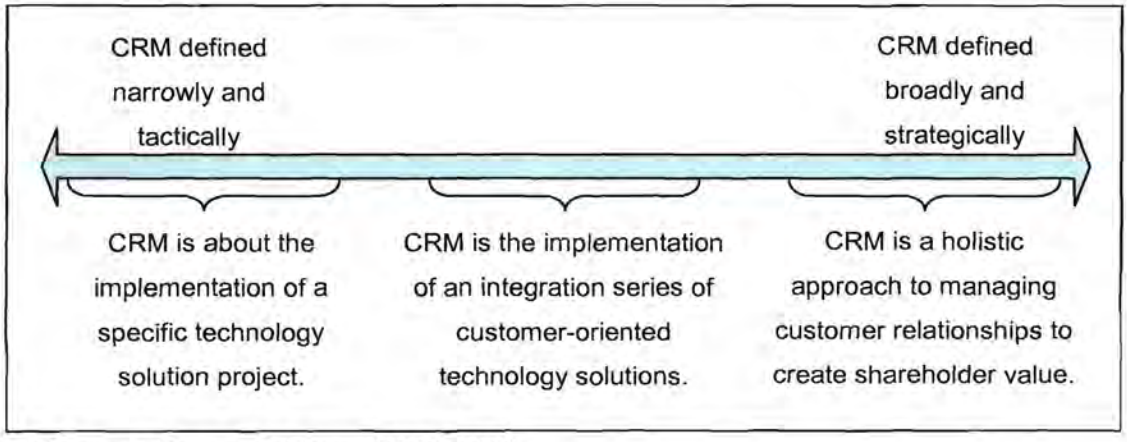
The definition of CRM adopted by any organisation has a significant impact on how it is accepted and practiced. It is therefore important that the definition of CRM supports the company's vision and mission. This approach, that CRM conforms to the company's strategic goals, enables it to create increased shareholder value through developing superior customer relationships (Thompson Jr, Strickland & Gamble, 2007:34).

CRM concentrates on building a relationship with the company's most important stakeholder – the customer. CRM is not about managing the customer, but rather about managing relationships with customers for the benefit of the company and the customer involved. For the relationship to be beneficial for both the customer and the company there should be an alignment between the customer's demands and the company's goals. This statement opens the argument for segmentation and customer selection (De Meyer, 2003:46).

Grönroos (2004:22) mentions a very important point by highlighting that services are inherently relationship-oriented. This is because of the fact that the customer must be involved due to the characteristics of a service as discussed in paragraph 2.3.1 "Defining the service environment".

Payne and Frow (2005:168) resolve the issue of not having consensus regarding the definition of CRM with the concept of a CRM continuum, as shown in Figure 2.1 below:

Figure 2.1: The CRM continuum



(Source: Payne & Frow, 2005:168)

Payne and Frow's CRM continuum describe the three perspectives toward CRM. These three perspectives are depicted on a straight line as shown in Figure 2.1 above:

- The first perspective of CRM is at the one end of the continuum, where the approach is narrow and tactical. This perspective describes CRM as the implementation of a specific technology solution project.
- In the middle of the CRM continuum, CRM is defined as the implementation of an integrated series of customer-orientated technology solutions.
- At the other end of the CRM continuum, the perspective is that CRM is a broad and strategically holistic approach to managing customer relationships, to create shareholder value.

For the purposes of this study, as a result of the discussion above, CRM can be defined as:

> ***Customer Relationship Management is the overall strategic approach to improved shareholder value by building and maintaining profitable customer relationships by delivering superior customer value and satisfaction by means of a cross-functional integration.***

A strategic approach means that there is a conscious decision made, that is in line with the organisation's strategy, that is pre-planned, of which the actions

are directed towards improving shareholder value. These actions aim to impact on the relationship with the customer in such a way that it will provide superior solutions to the needs of the customer. By fulfilling these needs, value is created for the customer and the customer is satisfied. As stressed by Payne (2006:13), these actions must be performed by all in the organisation.

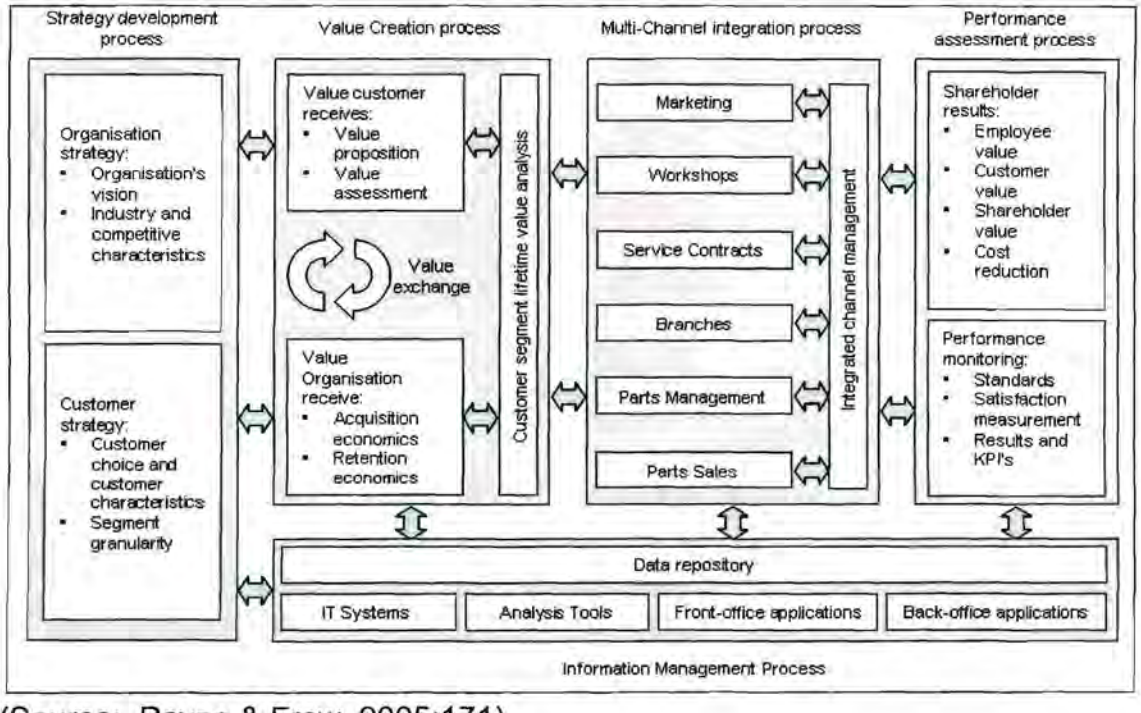
2.2.2 Strategic framework for CRM

Payne (2006:29) identified the following five processes by doing considerable research:

- The strategy development process;
- The value creation process;
- The multi-channel integration process;
- The information management process; and
- The performance assessment process.

In conjunction with Frow, Payne developed a strategic framework to show the interaction between the processes (Payne & Frow, 2005:171). This framework was reworked to suit the service delivery environment of the OEM and shown in Figure 2.2: Strategic framework for CRM below:

Figure 2.2: Strategic framework for CRM

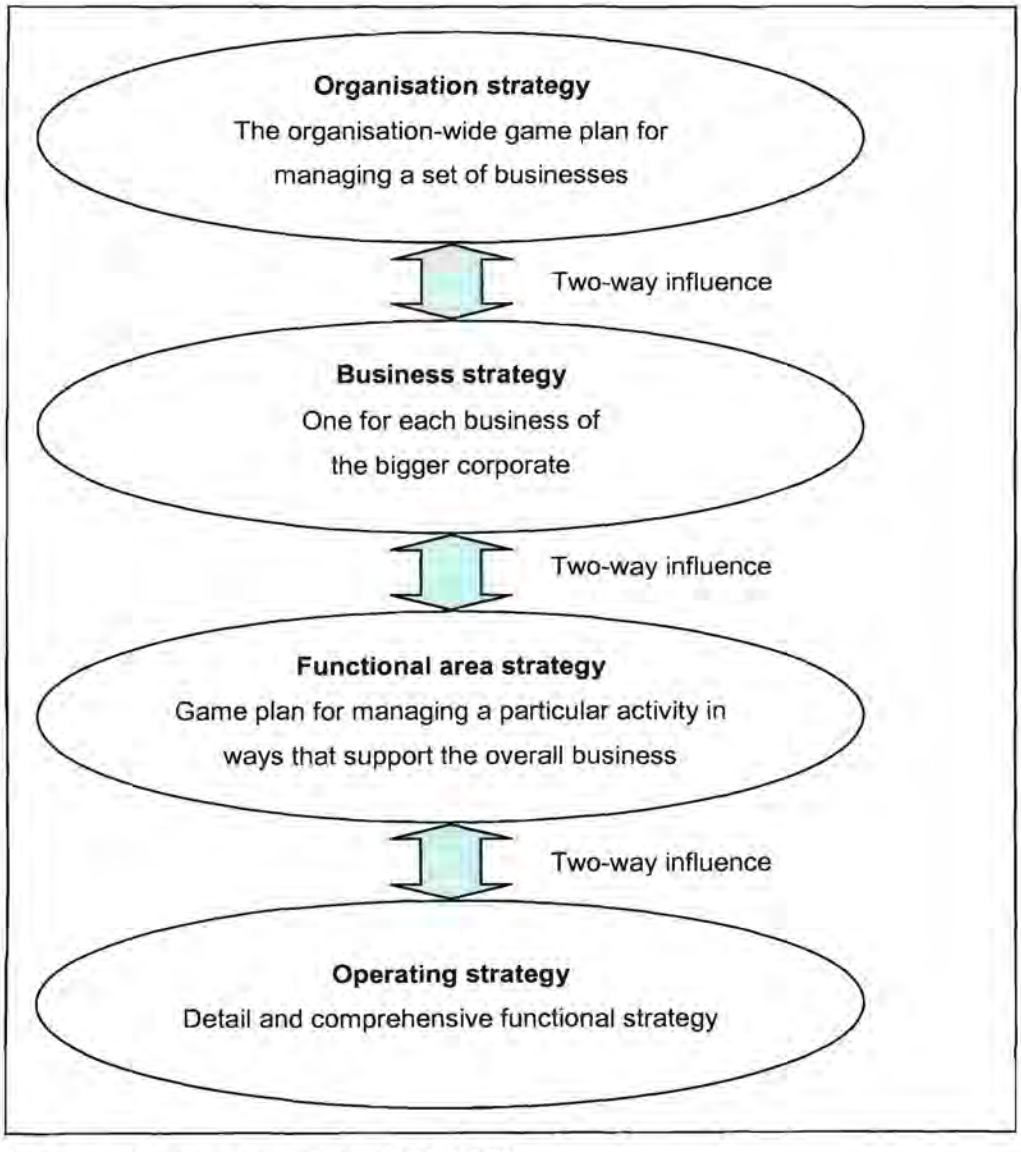


(Source: Payne & Frow, 2005:171)

2.2.2.1 The strategy development process

Thompson *et al.* (2007:38) explain that the process of crafting an organisation's strategy is determined by the senior executives, as shown in Figure 2.3: Strategy-making hierarchy below. First, the corporation's strategy is determined by the senior executives. Once the strategy is set, the businesses within this organisation determine its own strategy for the business, which must conform to the overall corporate strategy. Within each of these businesses, the functional areas determine a strategy that details the 'how' of the overall organisation strategy. Lastly, the operational strategy provides a game plan for managers' specific operational activities with strategic significance.

Figure 2.3: Strategy-making hierarchy



(Source: Thompson *et al.* (2007:39))

Payne and Flow (2005:170) suggest that CRM is often based on the functional roles of the IT and marketing department, although it requires a cross-functional approach. This is because the customer strategy involves examining the existing and potential customer base and identifying which forms of segmentation are most appropriate, as discussed in paragraph 2.2.3.

Therefore the strategy development process for CRM involves a detailed assessment of the organisation and business strategy and the development of a customer strategy in line with the organisation's vision.

2.2.2.2 The value creation process

The second block in Figure 2.3 above illustrates the value creation process, takes the strategy developed into programs that extract and deliver value. The three important elements of the value creation process are:

- Determining which value the organisation can provide to the customer;
- Determining which value the company can receive from its customers; and
- Managing the exchange of the value that was created.

2.2.2.3 The multi-channel integration process

At the core of the CRM strategy framework is the multi-channel integration process, which takes the output from the business strategy and the value creation process into activities that add value to the customer and, in return, to the organisation. Rangarajan (2007) defines channel management as "the process of designing a set of marketing and distribution arrangements that fulfil the requirements and preferences of targeted market segments and customers, creating value through direct sales forces and constructing offerings for resellers that builds marketplace equity." In the service Aftermarket business of the OEM, these channels are marketing, workshop to repair the machines, service contracts at the mine sites, branches, parts management and part sales.

All these channels need to be integrated to offer the customer the optimum combination that is appropriate for each customer and to present the organisation as a single unified entity to the customer.

2.2.2.4 The information management process

To generate customer insight and response appropriate to the market, information is needed about the customer. To produce the information, a data repository is needed that collects and collates data about the customer (Greenberg, 2001).

The information management process is supported by IT systems, analysis tools and front office and back office applications. It is very important that these systems are integrated properly to improve customer relationships.

2.2.2.5 The performance assessment process

The results of the CRM strategic framework are measured in the performance assessment process. The measurement process consists of two portions: shareholder result which provides a macro view of the overall relationship, and performance monitoring which provides a more detailed micro view of metrics and KPIs (Payne & Flow, 2005:174).

2.2.3 Customers and customer segments

For any company it is vital to know who the customers or customer segments are. The Concise Oxford English Dictionary (Fowler & Fowler, 1992:286) definition of a customer is very simple: *"a person who buys goods or services from a shop or business"*. Grönroos (2004:3), however, writes that customers do not buy goods or services, but they buy the benefits which goods and services provided them with. It is this benefit that creates the value for the customer. The value of a product or service is created in the customer's value-generation processes.

Customers are people or businesses looking for solutions which they can use to create value for them. As mentioned by De Meyer (2003:46), the solution should be beneficial for both the customer and the supplier. If the solution provided is not the solution to the problem, it is not beneficial for the customer

and it will not create value. The other side of the argument of De Meyer's statement is that it must also be beneficial for the supplier. If the person or business does not have the capacity to be beneficial for the supplier, that person or business cannot be regarded as a customer.

It is therefore suggested that a customer is a person or a business that has the potential to create mutual benefit for that person or business and the supplier, by applying a solution provided, by the supplier to generate value (which could also be satisfaction).

In the marketplace, suppliers compete to sell their product or service to potential customers. According to writers like Wood (2005:53), the competitive pressures between suppliers are increasing. Furthermore, as mentioned by Kotler and Armstrong (2006:195), the market may consist of many types of potential buyers that have different needs, attitudes and buying practices, as people are heterogeneous. It is therefore difficult for any organisation to be everything for all buyers. As mentioned earlier, the transaction should be mutually beneficial for all the parties involved. Through segmentation, the market is divided into smaller groups, that can be reached more efficiently and effectively, with products and services that match each organisation's unique needs. Kotler and Armstrong (2006:47) define a market segment as a group of consumers who respond in a similar way to a given set of marketing efforts.

Types of attributes of customers that are generally considered in segmenting a consumer market are demographic, geographic, psychographics, behavioural and attitudinal. As Wood (2005:61) correctly points out, the variables for a business segment is not the same as the variables for a consumer market. Typical variables for a business segment are shown in Table 2.1 below:

Table 2.1: Segmentation variables of business markets

Type of variable	Example
Demographic	Industry, business size, business age, ownership structure
Geographic	Location, distance, climate
Behavioural and attitudinal	Purchase pattern and process, user status, benefits expected, supplier requirements and evaluation, attitude towards product and usage, technological orientation, loyalty status, order size/frequency, buyer/influencer/user attributes

(Source: Wood (2005:61))

2.2.3.1 Demographics variables

Segmenting the business market by industry could be one of the first segments, but if the nature of the product is already only sold to, for example, the mining industry, as in the case of the OEM, further segmentation might be needed. Turnover, number of operations, number of employees, and so on, can also be used to segment the market further.

As Wood (2005:61) states, newly started businesses might have different needs than an established business. For example, the younger business might have a higher need for capital equipment, while the older business has a higher need for maintenance (Timmons & Spinelli, 2003:561).

The ownership of the business could also influence the buying behaviour. Many corporations have a central buying department which base their buying decisions on a set of predetermined rules. On the other side of the scale is a single one-man ownership operating as a small contractor to whom quality and support are more important (Wood, 2005:62).

2.2.3.2 Geographic variables

Geographic variables such as nation, region and climate can be used to segment the market. This allows grouping of business customers according to concentration of outlets, location of headquarters and geography-related needs. Typical geography-related needs are particularly important to the OEM, as the location of ore bodies to be mined can be considered. This is

due to the type of ore bodies, which dictate the mining method and therefore the equipment selection process. The equipment must be physically able to fit into the envelope size of the mining method.

2.2.3.3 Behavioural and attitudinal variables

Businesses have different policies and practices. Many businesses only evaluate the price, while other considers the lowest cost yield. Similarly, companies that are frequent users may require different offers or messages than first-time buyers (Wood, 2005:62).

2.3 SUPERIOR CUSTOMER VALUE AND SATISFACTION IN A SERVICE ENVIRONMENT

Services are getting more important in the world. This is confirmed by the estimations of Kotler and Armstrong (2006:257) that services are making up a quarter of the value of all the international trade and they are still growing.

2.3.1 Defining the service environment

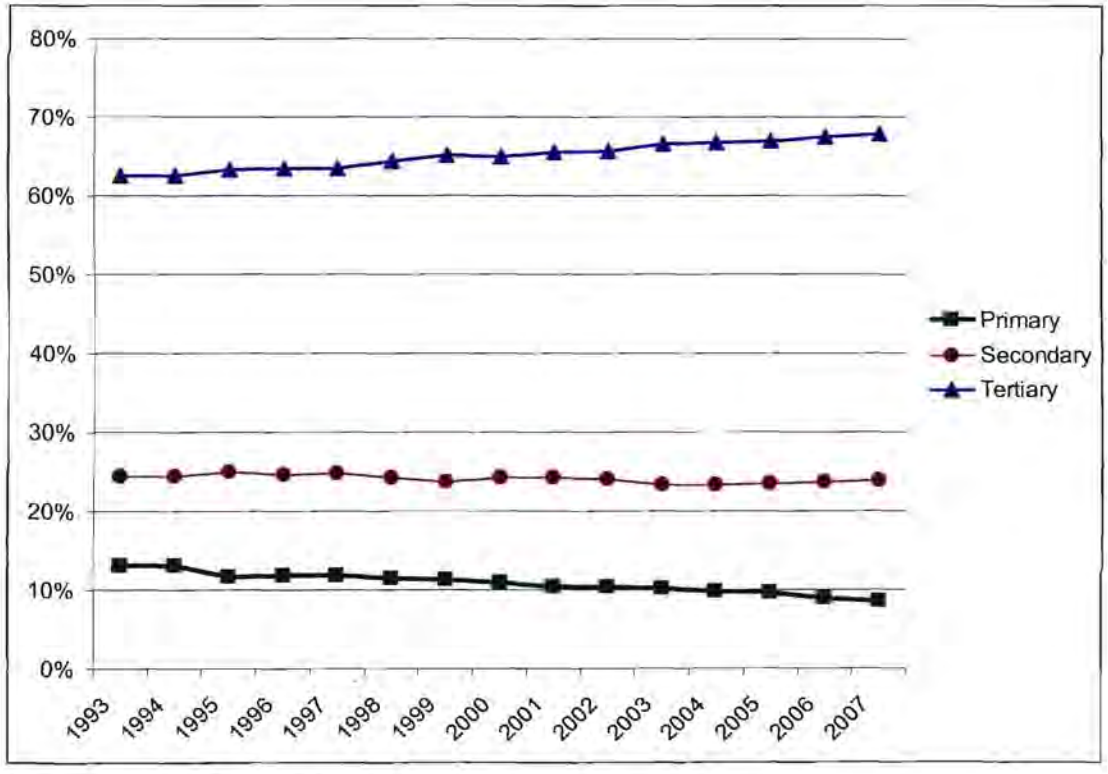
Van Looy *et al.* (2003:5) quote Adam Smith, one of the founding fathers of economics as a science, from his book published in 1776, *The Wealth of Nations*, that *"Productivity is all labour which fixed and realises itself in a particular subject or vendible commodity ... unproductive is all labour which generally pens in the instant of their performance."* Therefore, true service was considered lesser as stated by Marshall in 1920, according to Van Looy *et al.* (2003:5) — *"Services and other goods, which pass out of existence in the same instant that they come into it, are of course not part of the stock of wealth."*

Since those early days of modern economic science, services have become more and more important. It has realised that services are making an important contribution to the Gross Domestic Product (GDP) of a country. Mohr, Fourie and associates (2004:63) define GDP as the total value of all final goods and services, produced within the boundaries of a country in a particular period (usually one year). Economists like Mohr *et al.* (2004:30) divide industries in three broad sectors:

- The primary sector is the sector in which raw materials are produced;
- The secondary sector is the manufacturing part of the economy in which raw materials are used to produce goods; and
- The tertiary sector comprises the services and trade sections of the economy.

Considering the GDP of South Africa, this trend that services are becoming more important, is confirmed by the percentage contribution to the GDP, as can be seen in Figure 2.4 below. The graph in Figure 2.4 illustrates the percentage contribution of the three sectors to South Africa's GDP.

Figure 2.4: Percentage contribution per sector to SA GDP



(Source: StatsSA 2008:27)

The line at the bottom of the graph indicates that the contribution of the primary sector to South Africa's GDP has declined since 1993 from 13.2% to 8.5% in 2007, with a clear downward trend of 0.3% per annum.

The chart further indicated a fairly stable contribution from the secondary sector with a 23.7% contribution in 2007.

The biggest contributor is the tertiary or services sector, which increased from 62.5% in 1993 to 67.8% in 2007, at a rate of 0.39% per annum.

It is the writer's opinion that these trends cannot be sustained indefinitely, but the percentage contributions will not fall back to the levels where services are regarded as non-valuable, as in the days of Adam Smith, as mentioned above. This is based on the fact that raw materials will always be *necessary* to support human beings.

The importance of this trend to the OEM of trackless mining equipment is that the industry which goods are provided to is shrinking relative to the secondary and tertiary sectors. The OEM therefore needs to adjust their business model to ensure that the revenue base does not consequently decline. To consider the adjustment needed, an understanding of the driving forces behind the growth of the services is required. According to Van Looy *et al.* (2003:8), these driving forces are:

- Change in buying behaviour,
- Sociological and demographic changes;
- Growing importance of producer service; and
- Technological developments.

There are many attempts to define services. Some of the characteristics of a service according to Van Looy *et al.* (2003:11) are that a service is:

- Intangible – the result of a service transaction is a process or an act. Therefore there is no transfer of ownership.
- Simultaneity – production and consumption are intertwined. It is therefore consumed as it is produced.
- Perishable – a service cannot be kept in stock.
- Heterogeneous – as services are produced with the interaction between the producer and the consumer the variables influencing the outcome changes.

Considering the characteristics, developments over time and the driving forces of services, service is defined for the purpose of this study as:

Services are all the unique activities and processes (heterogeneous) of economic value which are intangible and consumed as provided (perishable) due to the interaction (relationship) between the consumer and the service provider, to provide a solution to the consumer's demands.

This definition highlights the elements which make services unique, comparing to the characteristics of a product, as shown in Table 2.2: Differences between services and goods below:

Table 2.2: Differences between services and goods

Services	Goods
• Activities or processes	• Physical object
• Heterogeneous	• Homogeneous
• Intangible	• Tangible
• Perishable (cannot be kept in stock)	• Can be kept in stock
• Simultaneous production and consumption	• Separation of production and consumption
• Are experienced	• Ownership is transferred

(Source: Rangarajan 2007 and Van Looy *et al.*, 2003:11)

When goods are produced, the final product results in an object that will be sold, while when a service is delivered a sequence of actions is performed.

In most cases the objects that are produced by a goods producer of a certain product are the same, with no significant differences in the attributes that describe the product. When delivering a service the result might be the same, but also it might not be the same as the previous time it was delivered. Services are therefore heterogeneous – unique in each delivery.

The service delivery cannot be touched as it is a process or an act. It is therefore intangible, while the object that was produced by a producer can be

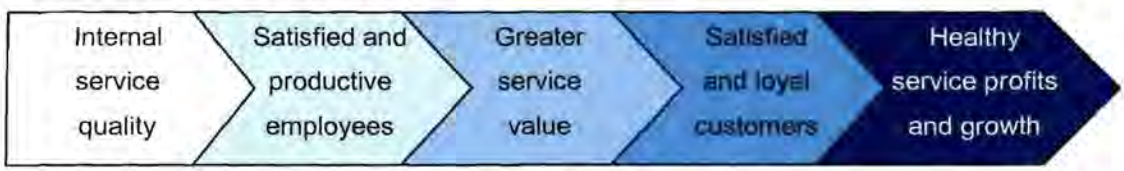
touched, picked-up and taken home with you, which mean that the ownership of the result of a producer can be transferred. The activity of a service delivered is experienced. Because a service is experienced, the production and consumption is simultaneous and cannot be stored or stocked. A product can be manufactured, stocked and consumed at a later stage as the consumption does not require direct interaction between the consumer and the producer.

2.3.2 Customer value and satisfaction

To understand the value of a service to a customer is to understand the service-profit chain – what is the reason that the customer will part from their money to allow the provider to make profit?

According to Hill and Alexander (2002:22), and suggested by Heskett, Sasser and Schlesinger (2003) in their book *The Value Profit Chain: Treat Employees like Customers and Customers like Employees*, the service-profit chain consists of five links as shown in Figure 2.5 below:

Figure 2.5: Service-profit chain



(Source: Van Looy *et al*,2003 and Hill & Alexander, 2002)

- *Internal service quality*: Superior employee selection and training, a quality work environment, strong support for employees, which result in
- *Satisfied and productive service employees*: more satisfied, loyal and hardworking employees, which result in
- *Greater service value*: more effective and efficient customer value creation and service delivery, which result in
- *Satisfied and loyal customers*: satisfied customers who remain loyal, repeat purchases and refer other customers, which result in
- *Healthy service profits and growth*: Superior service firm performance.

To understand the greater services value, the question to be answered is: "What is their claim to fame?" Value creation is the desirable outcome of economic activity and/or process as well as the consumption thereof. Customers are not specifically looking for goods, services, knowledge or information. Customers require something of value. Value is commercially offered in the market by suppliers (Gummesson, 2002:8).

The agreement, between the customer and the service provider, that documents the minimum requirements of the results of the actions and/or processes to be delivered, is called a Service Level Agreement (SLA). Once the service provider has performed the actions and/or processes to the level that meets the requirements, does it put the obligation on the customer to reward the service provider accordingly.

According to Van Looy *et al.* (2003:168), the four core characteristics of an SLA are:

- An SLA needs agreement and therefore approval of both parties. An SLA is bilateral and is therefore by definition tailor-made for each relationship.
- An SLA should take into account the mutual interest of both parties.
- An SLA sets clear performance standards for both parties.
- An SLA enables the service provider to manage and deliver on the expectations of the customer.

Van Looy *et al.* (2003:170) list some common pitfalls when implementing service level agreements as:

- Poor handling of service failures

  The objective of a SLA should be to build the relationship; therefore, non-compliances to the required level of delivery should be handled constructively. If non-compliances are attacked, it normally leads to avoid reporting the problems.
- Inadequate definitions and poor measurements

  The data should be accurate in order to lead the focus towards the issues that should be addressed. If the information is not clear, it will

either send to focus in the wrong direction or cause a debate regarding the accuracy of the information, therefore not addressing the correct issue at hand.

- Lack of mutual benefit and commitment
  Building a relationship takes effort from both the service provider and the customer. If there is no benefit to any of these parties, the SLA will not get the attention needed, to understand the non-compliances and to constructively resolve the areas of concern.

The Concise Oxford English Dictionary (Fowler & Fowler, 1992:1224) defines "superior" as "of higher rank; above the average quality; better or greater in some respect."

Therefore, in order to deliver superior customer value, it is suggested that the service provider must deliver an action or process (service) better or greater than the expectation of the customer or to an above average quality as defined by the SLA. The SLA describes the deliverables and key performance areas of the said action or expectation of the customer.

2.4 CONCLUSION

Therefore, it is concluded that CRM is the overall strategic approach to improved shareholder value by building and maintaining profitable customer relationships by delivering superior customer value and satisfaction by means of a cross-functional integration, based on the literature study. The strategic framework for CRM consists of the strategy development process, the value creation process, the multi-channel integration process, the information management process and the performance assessment process, which should all form part of the bigger organisational strategy.

Furthermore, the literature study revealed that a customer is a person or a business that has the potential to create mutual benefit for that person or business and the supplier, by applying a solution provided, by the supplier to generate value (which could also be satisfaction). Customers can be

segmented into their demographics, geographic, behavioural and attitudinal variables.

Service was defined as all the unique activities and processes (heterogeneous) of economic value which are intangible and consumed as provided (perishable) due to the interaction (relationship) between the consumer and the service provider, to provide a solution to the consumer's demands. Service is becoming more important as its contribution to the GDP is steadily increasing over the last decade. This increase in the contribution to the GDP starts at the service-profit chain, where the internal service quality is the first link followed by satisfied and productive employees, service value to the customer, customer satisfaction based on delivering on the requirements of an SLA, which lastly create profit and growth.

CHAPTER 3 - CUSTOMER SATISFACTION MEASUREMENT AND INDEXING

3.1 INTRODUCTION

3.1.1 Basic statistics

Statistics is divided into two branches, called descriptive statistics and inferential statistics, according to Levine *et al.* (2005:2). Descriptive statistics focuses on the collection, summarisation and characterisation of a set of data, while inferential statistics estimates the characteristics of a set of data, or helps uncover patterns that are unlikely to occur by chance.

The data were analysed by identifying the KPAs where the average rating is low compared to the rest of the questionnaire. The data were also analysed by comparing responses from the customers and the contract managers to identify gaps in their perceptions.

As stated by Myers (2000:12), it is of utmost importance that the information gathered is a true reflection of the situation. Furthermore, because customer survey results are usually stated in terms of trends over time and/or changes from one wave to another, changes cannot be made in attributes or rating scales.

3.1.2 Types of data

Levine *et al.* (2005:15) indicated the existence of three types of data:

- Categorical data types
  The response from categorical data type questions enables the data to be categorised. Furthermore, there is no need for a sequence between the various potential answers. Typical answers to these questions are yes or no, etcetera
- Numerical discrete data types
  A numerical discrete data type delivers a number that is absolute and exact.

- Numerical continuous data types
  A numerical discrete data type delivers a number that is continuous; for instance, a length or time period.

3.1.3 Sample size

Levine *et al.* (2005:9) state that the first step in sampling is to define the frame. The frame is a complete or partial listing of items comprising the population. The OEM's Aftermarket service contracts, within South Africa, currently serve three customers. Therefore, the total population can, and were sampled.

The questionnaires were sent to the manager responsible for the production of the ore (i.e. production manager or mine manager), or to the resident engineer overseeing the maintenance function of the trackless mining equipment.

The second questionnaire aimed at the employees was completed by all the contract managers at all the service contracts.

3.2 VALIDITY AND RELIABILITY OF A QUESTIONNAIRE

3.2.1 Validity

When a survey is "validated" it means that the researcher has come to the opinion that the survey is measuring what it was designed to measure, or the researcher has received a statement from another researcher indicating that they believe the instrument is measuring what it was designed to measure. Validity is an opinion; nothing more (StatPac, 2008).

3.2.2 Reliability

Reliability is synonymous with repeatability. A measurement that yields consistent results over time is said to be reliable. When a measurement is prone to random error, it lacks reliability. The reliability of an instrument places an upper limit on its validity. A measurement that lacks reliability will also lack validity.

There are three basic methods to test reliability:

- test-retest,
- equivalent form, and
- internal consistency

A test-retest measure of reliability can be obtained by administering the same instrument to the same group of people at two different points in time. The degree, to which both administrations are in agreement, is a measure of the reliability of the instrument. This technique for assessing reliability suffers two possible drawbacks. First, a person may have changed between the first and second measurement. Second, the initial administration of an instrument might in itself induce a person to answer differently on the second administration (Evensen Web Design, 2008).

The second method of determining reliability is called the equivalent-form technique. The researcher creates two different instruments designed to measure identical constructs. The degree of correlation between the instruments is a measure of equivalent-form reliability. The problem in using this method is that it may be very difficult (and/or prohibitively expensive) to create a totally equivalent instrument.

The most popular methods of estimating reliability use measures of internal consistency. When an instrument includes a series of questions designed to examine the same construct, the questions can be arbitrarily split into two groups. The correlation between the two subsets of questions is called the split-half reliability. The problem is that this measure of reliability changes, depending on how the questions are split. A better statistic, known as Cronbach's alpha, (Field, 2005:666-670) is based on the mean (absolute value) inter item correlation for all possible variable pairs. It provides a conservative estimate of reliability, and generally represents the lower bound to the reliability of a scale of items. For dichotomous nominal data, the KR-20 (Kuder-Richardson) is used instead of Cronbach's alpha (StatPac, 2008).

3.3 ELEMENTS MEASURED

In chapter two of this study the theoretical perspectives of customer relationship management were discussed. The questionnaires start by gathering some demographical information regarding the individual completing the questionnaire. Based on the theoretical study in Chapter 2, the rest of the questionnaire will follow the service-profit chain as shown in Figure 2.5: Service-profit chain:

- Internal service quality
- Satisfied and productive employees
- Service value
- Satisfied and loyal customers
- Healthy service profits and growth

The aspects tested in the questionnaire to determine the importance and the performance of each one of the five elements are:

3.3.1 Internal service quality

i. Selection process of the OEM's employees at the service contract.
ii. Training of the OEM's employees.
iii. Total remuneration of the employees of the OEM at the service contract.
iv. Tools (spanners, screwdrivers, and more) available to the OEM's employees to do their jobs.
v. The availability of a proper workshop facility to work on the machines.
vi. The availability of parts to repair and maintain the machines.
vii. The availability of service exchange components to repair and maintain the machines.
viii. The quality of the repairs of the service exchange components.
ix. The maintenance planning system of OEM.
x. Technical information provided to the OEM artisans.

3.3.2 Satisfied and productive employees

i. The importance that the OEM bonus system is driving the correct behaviour.
ii. The retention of employees by the OEM.
iii. The support by the supervisors to the artisans.
iv. The support by the OEM's managers on site to the total contract.
v. The support by OEM's head office to the total contract.
vi. Technical support to the contract by the OEM's head office.
vii. The positive attitude of the OEM's employees on site.
viii. The employee satisfaction of all the OEM's employees on site.
ix. Productiveness of the OEM's employees.

3.3.3 Service value

i. Information provided to the customer by the OEM.
ii. The OEM's monthly report.
iii. Accuracy (acceptance) of the monthly report by all parties.
iv. Quality of the repairs done on site by the OEM's employees.
v. Quality of the scheduled services done on site by the OEM's employees.
vi. Invoicing accurately.
vii. Value received by the customer.

3.3.4 Satisfied and loyal customers

i. Listening to the customer's suggestions.
ii. The quality machine operators.
iii. Meets the needs and requirements of the customer.
iv. Customer satisfaction.
v. Customer loyalty.
vi. Long term partnership.
vii. Recommending the OEM to maintain equipment to others.
viii. Adequacy of the service level agreement to the customer's needs.
ix. Correcting failures to comply with the service level agreement.
x. Comparing the OEM to other OEM's of mining equipment.
xi. The management of the relationship with the customer on the service contract level.

3.3.5 Healthy service profits and growth

xii. The importance of what the OEM's profitability of the service contract should be.

xiii. The importance of what the OEM's profitability of the service contract is.

3.4 QUESTIONNAIRE TO CUSTOMERS AND THE OEM'S EMPLOYEES

Based on the aspects mentioned in the above paragraph, two questionnaires were developed. The questionnaire to be completed by the customers is shown in APPENDIX A – Customer's Questionnaire, and the questionnaire to be completed by the OEM's managers is shown in APPENDIX B.

3.5 QUESTIONNAIRE RESPONSE

The questionnaires were distributed during September 2008, to be completed and returned to the researcher.

Three responses were received from the customer questionnaire – one from each service contract, of which two were completed by the mine managers and one completed by the resident engineer. The responses represent 100% of the target population of the customers.

Three contract managers and two managers based at the OEM's head office, responded on the questionnaire. These managers are directly responsible for the service contracts. These responses represent the total target population of the three service contracts of the OEM that are within the borders of South Africa.

The detail responses for each of the completed questionnaires were captured and are provided in APPENDIX C – Summary Response from Completed Questionnaires.

3.6 CONCLUSION

The empirical investigation, discussion and interpretation of the results of the data received via the questionnaires received will be done in CHAPTER 4 - below.

CHAPTER 4 - EMPIRICAL INVESTIGATION, DISCUSSION AND INTERPRETATION OF THE RESULTS

4.1 INTRODUCTION TO THE EMPIRICAL INVESTIGATION

This chapter considers the responses received from the customers and contract managers, which were presented in CHAPTER 3 - and APPENDIX C – Summary Response from Completed Questionnaires.

Firstly, the results of the five elements measured (Internal service quality, Satisfied and productive employees, Service value, Satisfied and loyal customers and Healthy service profits and Growth) of the two target groups are compared. This is done by calculating the arithmetic mean and the standard deviation of each aspect, as well as the total element.

Secondly, the second and third sections of the questionnaire are combined, to provide a holistic picture of the perspective of the customers and the contract managers, providing a total index of the performance of the OEM's service contracts.

Lastly, the major differences between the perception of the customers and the perception of the contract managers are identified, interpreted and discussed in detail.

4.2 IMPORTANCE OF THE SERVICE VALUE CHAIN ELEMENTS

In development of the rating of the importance of the service value-chain elements, the allocation of points to the importance indicated by the respondents was done according to the following table:

Table 4.1: Rating of importance

Rating	Points
No Importance	0%
Moderate	33%
Important	67%
Very Important	100%

The interpretation of the above table is that if the respondent marked the aspect questioned as Very Important, the aspect is allocated a 100%, while on the other extreme, 0% is allocated if the respondent indicated that the aspect has No Importance.

The result of applying the above rating and grouping of the responses yielded the average and standard deviation for the customer group and the OEM group respectively, as indicated in Table 3.2: Response to importance of the elements regarding the importance of the aspects tested.

Table 3.2: Response to importance of the elements

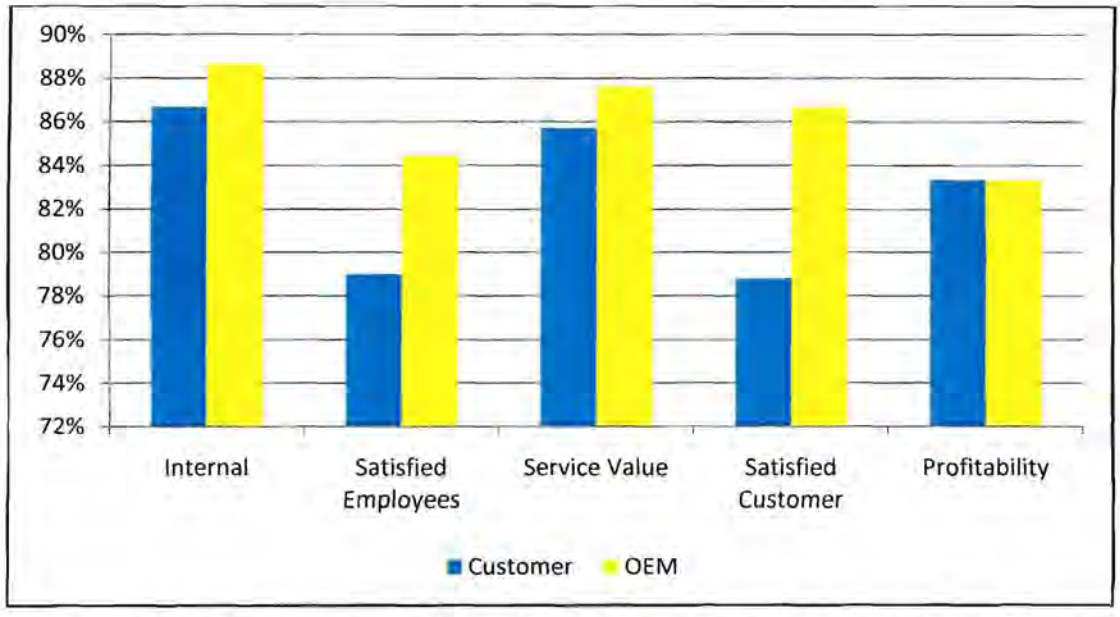
Element	Customer	Std Dev of Customer	OEM	Std Dev of OEM
Internal Satisfied	86.7%	10.2%	88.7%	7.1%
Employees	79.0%	13.0%	84.4%	12.0%
Service Value	85.7%	8.4%	87.6%	12.4%
Satisfied Customer	78.8%	12.6%	86.7%	8.9%
Profitability	83.3%	7.9%	83.3%	4.7%
Total	82.3%	11.3%	86.7%	9.6%

The values of the importance for the customer, as well as for the OEM are graphically represented in Figure 4.1: Importance of the elements. From the

table and the bar chart it can be seen that both the customer and the OEM agree that the internal service quality of the OEM is the most important element. The customers rated the importance of the internal service quality at 86.7% with a standard deviation of 10.2%, while the OEM's managers rated it at 88.7% with a standard deviation of 7.1%.

The standard deviation measures the "average" scatters around the mean (Levine *et al.*, 2005:117).

Figure 4.1: Importance of the elements



The second most important element, according to both groups, is the service value received by the customer, with a rating of 85.7% and 87.6% and a standard deviation of 8.4% and 12.4% respectively.

The element indicated as the least important by the customers, is the customer satisfaction, rating it at 78.8% with a standard deviation of 12.6%. The OEM's managers indicated the profitability of the service contracts as the least important element, with a rating of 83.3% and a standard deviation of 4.7%.

The employee satisfaction element was rated as the second lowest important element by both the customers and the OEM's managers. The average ratings were 79.0% and 84.4% respectively. This element also had the

biggest standard deviation rated by the customer at 13.0% and almost just as high standard deviation, according to the OEM's managers – 12.4%.

4.3 SERVICE VALUE CHAIN ELEMENTS PERFORMANCE

In development of the rating of the performance of the service value chain elements, the allocation of points, to the performance indicated by the respondents, was done according to the following table:

Table 4.3: Rating of performance

Rating	Points
Very Poor	0%
Below Average	25%
Average	50%
Above Average	75%
Excellent	100%

The interpretation of the above table is that if the respondent marked the aspect questioned as Excellent, the aspect is allocated a 100%, while on the other extreme, 0% is allocated if the respondent indicated that the performance on the aspect is very poor.

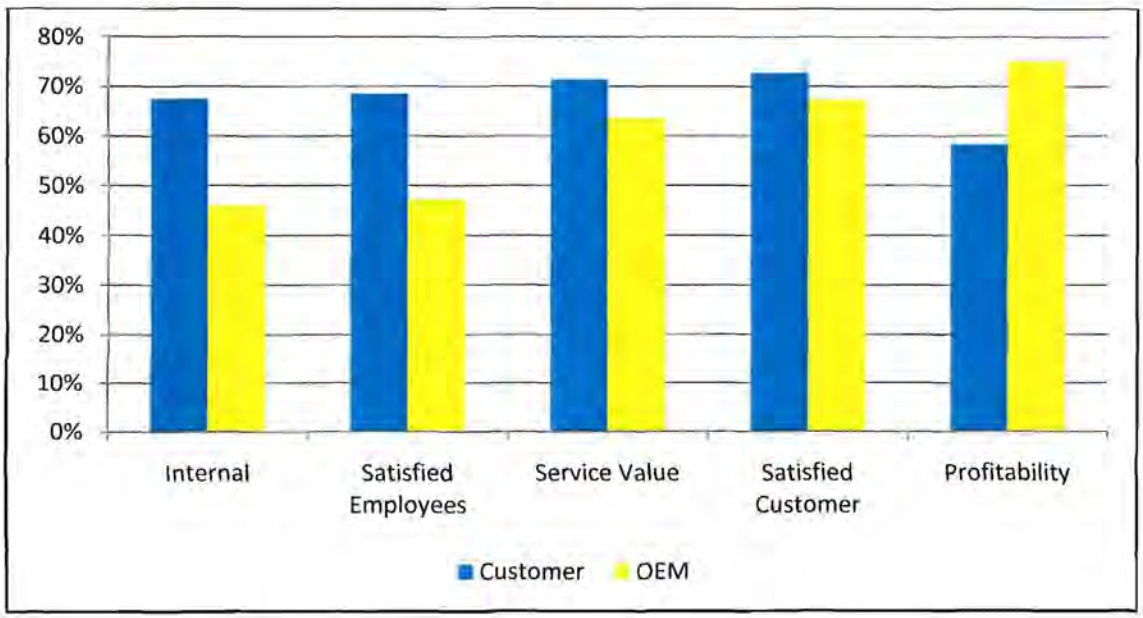
The result of applying the above rating and grouping of the responses yielded the average and standard deviation for the customer group and the OEM group respectively, as indicated in Table 4.4: Response to performance of the elements, regarding the performance of the aspects tested.

Table 4.4: Response to performance of the elements

Element	Customer	Std Dev of Customer	OEM	Std Dev of OEM
Internal	67.5%	10.0%	46.0%	12.6%
Satisfied Employees	68.5%	8.1%	47.2%	7.1%
Service Value	71.4%	12.6%	63.6%	9.0%
Satisfied Customer	72.7%	9.9%	67.3%	18.2%
Profitability	58.3%	11.8%	75.0%	7.1%
Grand Total	69.4%	10.2%	56.9%	16.1%

The average performance rating indicated in Table 4.4: Response to performance of the elements is graphically represented as a bar chart in Figure 4.2: Performance of the elements below:

Figure 4.2: Performance of the elements



As can be seen in
Figure 4.2, the customers generally rated the performance of the service contracts higher than the managers of the OEM. The overall average rating by the customers was 69.4% and by the managers 56.9%. The respective standard deviations for the overall measurements were 10.2% and 16.1%.

Barring the profitability element, the ranking of the service value chain is the same between the customers and the OEM's managers. The OEM's managers rated the profitability performance the highest, while the impression of the customers are that the performance of the service contracts profitability, is the lowest of all the elements.

The ranking of the performance, excluding the profitability element from the best performance to the worst, is customer satisfaction, service value, employee satisfaction and lastly, internal service quality.

4.4 THE COMBINATION OF THE IMPORTANCE AND PERFORMANCE OF THE SERVICE VALUE CHAIN ELEMENTS

To determine the overall Customer Satisfaction Index (CSI), the importance of the aspect under the elements of the service value-chain is multiplied with the performance as indicated by the questionnaires. Due to the fact that the elements are not all equally important, the maximum performance cannot be a 100%. It should also be mentioned that due to changes in the business environment, the importance of an element might change over time from the perspectives of the customer, as well as the managers of the OEM. The result of combining the importance of each element with the performance therefore yields an index.

The overall index, as rated by the customers yielded a result of 57.1, with a standard deviation of 11.4. The overall index as rated by the OEM's managers is 8.1 points lower, at a value of 49.0, with a standard deviation of 14. The respective coefficient of variation of the two groups is 20% and 28.5%, meaning that there is a bigger disagreement between the managers regarding the overall CSI. Levine *et al.* (2005:118) define the coefficient of variation as a relative measure of variations where the standard deviation is divided by the arithmetic mean. As indicated in paragraph 1.4, the overall index will be tracked over time to determine if there is an improvement.

Table 4.5: Weighted performance of the elements

Element	Customer	Std Dev of Customer	OEM	Std Dev of OEM
Internal	58.3	10.8	40.3	9.7
Satisfied Employees	54.4	12.1	39.8	7.6
Service Value	60.8	10.2	55.6	10.3
Satisfied Customer	57.6	13.2	57.7	15.7
Profitability	48.1	5.2	62.3	2.4
Index	57.1	11.4	49.0	14.0

4.5 DETERMINING THE GAPS

Levine *et al.* (2005:460-461) indicated that when comparing the tallies or counts of categorical responses between two independent groups, a two-way cross-classification table can be developed to display the frequency of occurrence of successes and failures, for each group. A methodology, known as the χ^2-test (chi-square) for equality of proportions, is then used to compare the proportions for the two groups.

The χ^2-test value was computed for each of the aspects in the questionnaire. These χ^2-test values calculated are shown in APPENDIX D – Chi-Square Results.

The level of significance α, is defined as the probability of rejecting the hypothesis that there is no difference between the perception of the customer and the perception of the managers of the OEM (Levine *et al.*, 2005:335). The level of significance α, for the rejection criteria for this study is 0.25. That means that there is a 25% probability that an aspect will be recognised as having a significant difference, while in actual fact there is no difference.

The degree of freedom is determined by the number of groups minus one, multiplied by the number of potential answers minus one. Therefore, the degree of freedom for the aspects on the importance questionnaire is 3 and the degree of freedom for the aspects on the performance questionnaire is 4.

The critical value of χ^2 to an upper-tail area (α) of 0.25 at 3 degrees of freedom, according to Levine *et al.* (2005:846) indicated in the statistical table E4 is 4.108 and for 4 degrees of freedom 5.385. Therefore, if the calculated χ^2 value of the aspect is bigger than 4.108 on the importance questionnaire, the hypothesis that there is no difference between the proportions, can be rejected with a 25% probability that a mistake was made. If the calculated χ^2 value of the aspect is bigger than 5.385 on the performance questionnaire, the hypothesis that there is no difference between the proportions, can be rejected with a 25% probability that a mistake was made.

4.5.1 Gaps between the importance perception

Considering the values presented in APPENDIX D – Chi-Square Results, the following five questions listed in Table 4.6: Gaps in importance, have a significant difference in the importance responses between the customers and the managers of the OEM. The aspects are ordered from the biggest calculated χ^2 value.

Table 4.6: Gaps in importance

Aspect	χ^2
Comparing the OEM to other OEMs of mining equipment	5.156
Total remuneration of the employees of the OEM at the service contract	4.800
Recommending the OEM to maintain equipment to others	4.800
Adequacy of the service level agreement to the customer's needs	4.800
Information provided to the customer by the OEM	4.444

4.5.1.1 Comparing the OEM to other OEMs of mining equipment

The χ^2-test indicated the importance of comparing the OEM to other OEMs and has a significant difference in the response between the customers and the OEM's managers. Table 4.7 below indicates the response from the customers and the OEM's managers. One of the customers indicated that comparing the OEM to other OEMs is moderately important, while the other two respondents indicated that it is important.

Table 4.7: Response to the comparison between the OEMs

	No Importance	Moderately	Important	Extremely Important
Customers	0	1	2	0
OEMs	1	0	1	3

One of the OEM's managers indicated that it is not important to compare with other OEMs. Another one indicated that the comparison is important, while three indicated that it is extremely important.

4.5.1.2 Total remuneration of the employees of the OEM at the service contract

A significant response was flagged regarding the question of the importance of the total remuneration of the employees of the OEM, at the service contracts. Table 4.8 indicates the response received:

Table 4.8: Importance of the OEMs employee's remunerations

	No Importance	Moderately	Important	Extremely Important
Customers	0	0	3	0
OEM's	0	1	1	3

All the customers indicated that the remuneration of the employees of the OEMs is important, while most (three) of the managers of the OEM indicated that it is extremely important. One of the OEM's managers indicated that remuneration is moderately important and the other one indicated that it is important.

4.5.1.3 Recommending the OEM to maintain equipment to others

A gap was identified between the perception of the customers and the OEM's managers, regarding the importance of recommending the OEM to others to maintain equipment.

The responses from the two groups are shown in Table 4.9 below:

Table 4.9: Responses to recommending the OEM to maintain equipment to others

	No Importance	Moderately	Important	Extremely Important
Customers	0	0	3	0
OEMs	0	1	1	3

All the customers indicated that recommending the OEM to maintain equipment to others is important, while one of the OEM's managers indicated

that referrals are moderately important and the other one indicated that it is important. Three of the managers of the OEM indicated that it is extremely important.

4.5.1.4 Adequacy of the service level agreement to the customer's needs

As can be seen in Table 4.10: Responses to the adequacy of the SLA all the respondents from the customers indicated that the SLA agreement is important. One of the OEM's managers indicated that it is only moderately important, while another one indicated that the SLA is important and the last three indicated that it is extremely important.

Table 4.10: Responses to the adequacy of the SLA

	No Importance	Moderately	Important	Extremely Important
Customers	0	0	3	0
OEMs	0	1	1	3

4.5.1.5 Information provided to the customer by the OEM

On rating the importance of the information provided by the OEM to the customer, two rated it as extremely important and the other one as important. All the respondents from the OEM indicated that the information provided to the customer is important as indicated in Table 4.11: Responses to the importance of the information provided below:

Table 4.11: Responses to the importance of the information provided

	No Importance	Moderately	Important	Extremely Important
Customers	0	0	1	2
OEMs	0	0	5	0

4.5.2 Gaps between the performance perception

The χ^2-test presented in APPENDIX D – Chi-Square Results indicated significance in the responses from the following two questions shown in Table 4.12 related to the performance of the OEM:

Table 4.12: Gaps between the performance perceptions

Aspect	χ^2
How good is the quality of the repairs of the service exchange components?	8.000
Please rate the customer loyalty.	8.000

4.5.2.1 Quality of the repairs of the service exchange components

When asked to rate the quality of the repairs done by the OEM, two of the customers responded that it is average, while the other one rated the quality as excellent as indicated in Table 4.13 below:

Table 4.13: Responses to the performance of the repairs for the service Exchange components

	Very Poor	Poor	Average	Above Average	Excellent
Customers	0	0	2	0	1
OEMs	0	0	0	2	3

Two of the respondents from the OEM rated the quality of the repairs of service exchange units as above average and the other three rated it as excellent.

4.5.2.2 Customer loyalty

When asked to rate the performance of the OEM in regard to customer loyalty to the OEM, one of the customers indicated that the loyalty is average, while the other two rated it as excellent.

All the respondents from the OEM rated the customer loyalty as above average, as can be seen in Table 4.14 below:

Table 4.14: Responses to the performance of the customer loyalty

	Very Poor	Poor	Average	Above Average	Excellent
Customers	0	0	1	0	2
OEMs	0	0	0	5	0

4.6 CONCLUSION

The questionnaires developed in the previous chapter were completed during September 2008. The responses from the three customers and five managers of the OEM's Aftermarket Service Contracts were received, which constituted the complete population. Analysis of the data yielded an overall CSI rating by the customers of 57.1 points and by the managers as 49.0 points.

A χ^2-test (chi-square) for equality of proportions were done of each of the aspects measured in the questionnaires, which indicated a significant difference in seven of the perceptions of the customers versus the perception of the managers of the OEM, known as the gaps.

The seven gaps were discussed and conclusions and recommendations related to these gaps as well as the building blocks and result of the CSI will be made in the following chapter.

CHAPTER 5 - SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 1 of this study served as an introduction to the study of CRM, from the perspective of the Aftermarket department of a major OEM of trackless mining equipment, to the South African mining industry. The study continued in Chapter 2 with a literature study of the subject of CRM, providing a definition for CRM, a strategic framework for CRM and market segmentation. Chapter 2 concluded with a discussion on superior customer value and the service environment, in which services and value creation were defined. The theoretical study of Chapter 2 was then made more practical in Chapter 3, where basic statistical aspects, the validity and the reliability of a questionnaire were discussed and two questionnaires were developed – one towards the customers and the second aimed at the employees of the OEM. The questionnaires were applied in real life and an empirical study was done in Chapter 4, which provided an overall CSI and identified seven aspects in which significant gaps were found in the answers provided by the two groups.

This chapter then concludes the study with a summary, as well as making conclusions and recommendations from the empirical study regarding the CRM of the Aftermarket department of the OEM.

5.2 SUMMARY

The summary of the literature study provided an overview of CRM by a definition for Customer Relationship Management, a strategic framework for CRM, as well as a discussion of customer segmentation and the service environment.

5.2.1 Customer Relationship Management

As a result of the literature study, CRM was defined as *the overall strategic approach to improved shareholder value, by building and maintaining*

profitable customer relationships, by delivering superior customer value and satisfaction by means of a cross-functional integration.

The strategic approach is a pre-planned set of actions, aimed to impact the relationship with the customer, where the customer is defined as *a person or a business that has the potential to create mutual benefit for that person or business and the supplier, by applying a solution, provided by the supplier, to generate value.*

The five elements in the strategic CRM framework are:

- The strategy development process – detailing the game plan for the organisation and the planned actions to create value;
- The value creation process – stating the value which the organisation can provide and receive from the customer and the exchange thereof;
- The multi-channel integration process – describing the arrangements to fulfil the needs of the customers;
- The information management process – providing insight to the customer's needs; and
- The performance assessment process – measuring the results of the actions taken.

The first part of Chapter 2 is concluded with a discussion regarding segmentation to enable a better understanding of the OEM's market in respect of the demographic, geographic, behavioural and attitudinal variables.

5.2.2 The service environment

The second part of Chapter 2 of this study has shown that there is an increase in the importance of the service environment of the macro economy. The service environment described as the tertiary industry has grown by 0.4% per annum, in the last decade to a level where services contributed 67.8% of the GDP of South Africa.

The literature study yielded a definition of services as *all the unique activities and processes (heterogeneous) of economic value which are intangible and*

consumed as provided (perishable), due to the interaction (relationship) between the consumer and the service provider, to provide a solution to the consumer's demands.

The service-profit chain describes the process to create value in the service environment as

- *Internal service quality*: Superior employee selection and training, a quality work environment, strong support for employees, which result in
- *Satisfied and productive service employees*: more satisfied, loyal and hardworking employees, which result in
- *Greater service value*: more effective and efficient customer value creation and service delivery, which result in
- *Satisfied and loyal customers*: satisfied customers who remain loyal, repeat purchases and refer other customers, which result in
- *Healthy service profits and growth*: Superior service firm performance.

The above value chain formed the basis for the empirical study, crafted in Chapter 3.

5.3 CONCLUSIONS FROM THE EMPIRICAL STUDY

Two questionnaires were completed during September 2008 by the customers and the managers of the OEM's Aftermarket service contracts. The responses were analysed making use of *MicroSoft's ® Office 2007 Suite*, supported by Levine *et al.* (2007).

5.3.1 Customer Satisfaction Index

The statistical analysis of the data indicated that the customers rated the overall CSI at 57.1, with a standard deviation of 11.4. The managers of the OEM's Aftermarket service contracts rated the CSI at 49.0 – 8.1 points below the customers. The standard deviation of the rating done by the OEM's Aftermarket service contracts rating was 14.

It is the OEM's intention to send the questionnaires to the above mentioned stakeholders on a bi-annual basis to track the trend over time and determine if there are any improvements in the CRM.

5.3.2 The gap in the perceptions

The database compiled from the responses from the questionnaires was analysed, by applying the χ^2-test (Chi-Square) method for equal proportions. The analysis identified the aspects with a significant difference in the responses from the perception of customers versus the perception of the OEM's managers. The level of significance, α, chosen for this analysis was 0,25.

Applying the above mentioned criteria, the following five aspects related to the importance were identified as having a significant difference in the responses:

- Comparing the OEM to other OEMs of mining equipment;
- Total remunerations of the employees of the OEM at the service contracts;
- Recommending the OEM to maintain equipment to others;
- Adequacy of the service level agreement to meet the customer's needs; and
- Information provided to the customer by the OEM.

Considering the rating related to the performance, the following two aspects were identified as having a significant difference between the responses from the customers versus the managers of OEM's Aftermarket service contracts:

- How good is the quality of the repairs of the service exchange components?
- Rating the customer's loyalty.

The above seven aspects therefore, constitute the gap in the customer's perception and the perception of the OEM's managers.

5.4 RECOMMENDATIONS

The analysis of the responses to the questionnaires identified a significant difference in seven aspects, in the responses from the customer's perceptions versus the perceptions from the OEM's managers. These seven aspects are grouped according to the elements as discussed in paragraph 3.3 "ELEMENTS MEASURED", to identify the Key Performance Areas.

Two aspects under the ***internal service quality*** were identified, namely:

- The importance of the total remunerations of the employees of the OEM at the service contracts; and
- The performance of the quality of repairs of the service exchange components.

The only aspect under the ***service value*** element which was identified was:

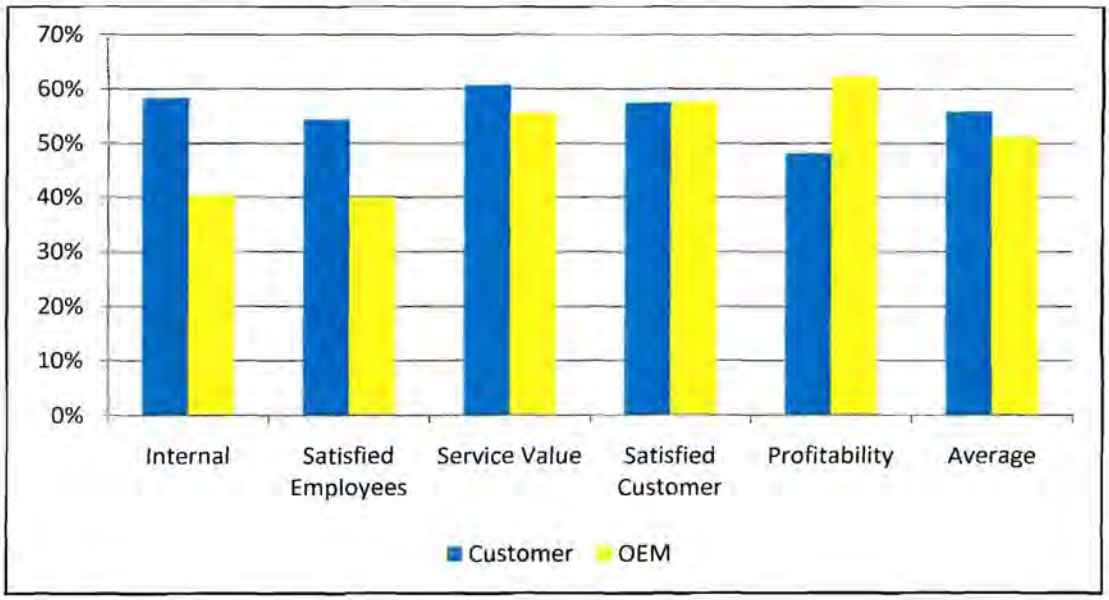
- The importance of the information provided to the customer by the OEM.

Under the ***customer satisfaction and loyalty*** element, the following four aspects were identified:

- The importance of comparing the OEM to other OEMs of mining equipment;
- The importance recommending the OEM to maintain equipment to others;
- The importance of a adequate service level agreement to meet the customer's needs; and
- Rating the customer's loyalty.

In addition to the above, the overall Customer Satisfaction Index (CSI) as rated by the customers and the OEM's managers needs to be considered. The indices of each of the elements of the service value chain are graphically represented as a bar chart in Figure 5.1: Weighted performance of the elements below:

Figure 5.1: Weighted performance of the elements



The element of the service-profit chain which was rated the lowest by the customers is the profitability of the service contract. This result is in line with the strategy of the OEM not to divulge information, related to the OEM's costs and profits.

The second worst performance element according to the customers, as shown in Figure 5.1: Weighted performance of the elements is the employee satisfaction. This element was also rated the lowest by the OEM's service contract managers. It is therefore concluded that in order to increase the overall CSI, this element should be addressed.

Based on the above discussion, the following Key Performance Areas (KPAs) are identified as areas of improvement:

- Overall employee satisfaction needs to be increased;
- The perception by the OEM's managers that the information provided to the customer is only important, while the customer considers it to be extremely important, needs to be addressed;
- Improvement with regard to the service exchange components quality of repairs is required;

- The gap related to the benefit to the customer to promote the OEM's Aftermarket service contracts should be highlighted; and
- The different perceptions related to the importance of the adequacy of the Service Level Agreement (SLA) need to be addressed.

5.4.1 Employee satisfaction

The OEM conducted a company wide employee climate survey during 2008. This survey did not form part of this study. It is therefore recommended that the result of the survey done is studied in detail and that an action plan is developed, based on the survey results to improve the overall employee satisfaction. In addition, it is recommended that the OEM improves its communication to the customers related to the OEM's remuneration strategy and the impact of this strategy on the service delivery to the customer.

5.4.2 Information provided to the customer

The customers indicated that the information provided to them is extremely important, while the managers of the OEM only regarded it as important. It is therefore recommended that the reporting channels of the OEM are raised, by getting the managers more involved in the information provided.

5.4.3 Improve the quality of the service exchange component repairs

The service exchange components are repaired at a central facility of the OEM and not at the service contracts. This central facility is currently ISO 9001 accredited. It is recommended that the processes developed, are communicated to the contract managers to enable them to verify the quality of the repairs done on the service exchange components and to properly report any defects.

5.4.4 Benefits to the customer for promoting the OEM

It is recommended that a communication document is drafted to inform the customers of the benefits for promoting the OEM's service contracts. It is essential that the document touches on the aspects which are important to the customer, for instance, safety, cost and better service delivery (improved availability of the machines).

5.4.5 The importance of the adequacy of the Service Level Agreement

As discussed in paragraph 2.3.2, define the level of expectation from the parties. As mentioned, a SLA is specific to a particular relationship and therefore it is not the same on the various service contracts. Being unique at each site, it is recommended that the contract managers are trained to set up a SLA and to successfully manage a SLA to the benefit of both parties.

5.5 CONCLUSION

This study aimed to determine an effective Customer Satisfaction Index (CSI) to assist the OEM and to apply Customer Relationship Management to meet the customer's demands. To achieve this, a literature and empirical study was conducted in which:

- CRM was defined and discussed;
- A CSI was developed and implemented, yielding a base point of 57.1 in September 2008, which will be tracked over time; and
- KPAs for improvement were identified and recommendations were made to achieve these improvements.

Therefore, it is concluded that the objectives of this study have been achieved and a solution was provided to the problem statement based on the above conclusions and recommendations.

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APPENDIX A – Customer's Questionnaire

Service Contract Customer Satisfaction Questionnaire

This questionnaire aims to improve customer relations with you, our valued customer to the benefit of both organizations. It will be highly appreciated if you will complete this questionnaire. The key personnel of the OEM on site will also complete a questionnaire that's aligned to this questionnaire, in order to identify potential gaps in the OEM's service delivery.

Please state the mine's name: _____

What is your highest position in your organization?

Mine Manager ☐
Production Manager ☐
Resident Engineer ☐
Equipment Engineer ☐
Other (please state) ☐ _____

How many years have you been involved with the service contracts of the OEM? _____ Years

This questionnaire can generally be completed in 15 minutes, consists of three parts. The first part evaluates the importance of various strategic aspects to you regarding the service contract. The second part provides the opportunity to rate the performance of the OEM, regarding these various aspects. The last section provides the opportunity to give feedback that you would like to bring under the attention of the OEM's management that was not covered by the first two sections.

Please rate the importance of the aspects below for you as a customer on the scale provided by marking one "X" in the appropriate column:

Aspect	No Importance	Moderate	Important	Extremely
Selection process of the OEM's employees at the service contract				
Training of the OEM's employees				
Total remuneration of the employees of the OEM at the service contract				
Tools (spanners, screwdrivers, etc.) available to the OEM's employees to do their jobs				
The availability of a proper workshop facility to work on the machines				
The availability of parts to repair and maintain the machines				
The availability of service exchange components to repair and maintain the machines				
The quality of the repairs of the service exchange components				
The maintenance planning system of OEM				
Technical information provided to the OEM artisans				
The importance that the OEM bonus system drives the satisfaction of your needs				
Good retention of employees by the OEM				
Good support by the supervisors to the artisans				
Good support by the OEM's managers on site to the total contract				
Good support by the OEM's head office to the total contract				
Technical support to the contract by the OEM's head office				
What is the importance of a positive attitude of the OEM's employees on site?				
The importance of employee satisfaction of all the OEM's employees on site				
Productiveness of the OEM's employees				
Information provided to you, the customer by the OEM				
What is the importance of the OEM's monthly report?				
Accuracy (acceptance) of the monthly report by all parties				
Quality of the repairs done on site by the OEM's employees				
Quality of the scheduled service done on site by the OEM's employees				
Invoicing accurately				
Value received by you – the client				
Listening to your suggestions				
How important is it to have quality machine operators?				
The importance that the service contract meets your needs and requirements				
Customer satisfaction				
Customer loyalty				
Long term partnership				
Recommending the OEM to maintain equipment to others				
Adequacy of the service level agreement to your needs				
Correcting failures to comply to the service level agreement				
Comparing the OEM to other OEM's of mining equipment				
The management of the relationship with you the customer on the service contract level				
The importance of what the OEM's profitability of the service contract should be				
The importance of what the OEM's profitability of the service contract is				

Please rate the performance of the aspects below as experienced by you as a customer on the scale provided by marking one "X" in the appropriate column:

Aspect	Very Poor	Poor	Average	Above	Excellent
How good is the selection process of the OEM's employees at the service contract?					
How good is the training of the OEM's employees?					
How good is total the remuneration of the employees of the OEM at the service contract?					
What is the availability of the tools needed by the OEM's employees to do their jobs?					
What is the availability of a proper workshop facility to work on the machines?					
What is the availability of parts to repair and maintain the machines?					
What is the availability of service exchange components to repair and maintain the machines?					
How good is the quality of the repairs of the service exchange components?					
How good is the maintenance planning system of the OEM?					
How good is the technical information that is provided to the OEM's artisans?					
How well does the OEM's bonus system drive the satisfaction of your needs?					
How good is the retention of employees by the OEM?					
How good is the support by the supervisors to the artisans?					
How good is the support by the OEM's managers on site to the total contract?					
How good is the support by the OEM's head office to the total contract?					
How good is the technical support to the contract by the OEM's head office?					
What is the attitude of the OEM's employees on site?					
How do you rate the employee satisfaction of all the OEM's employees on site?					
What is the productiveness of the OEM's employees?					
How good is the information provided to you, the customer by the OEM?					
How good is the OEM's monthly report?					
What is the accuracy (acceptance) of the monthly report by all parties?					
How good is the quality of the repairs done on site, by the OEM's employees?					
How good is the quality of the scheduled service done on site by the OEM's employees?					
Please rate the accuracy of the invoicing					
Please rate the value received by you – the client?					
How well does the OEM listen to your suggestions?					
Please rate the quality of the machine operators?					
How well does the service contract meet your needs and requirements?					
Please rate your customer satisfaction					
Please rate your customer loyalty					
What is the probability of a long term partnership with the OEM in the future?					
What is the probability of recommending the OEM's service contract to others?					
How adequate is the service level agreement to your needs?					
How well does the OEM correct failures of the service level agreement?					
How well does the OEM compare to other OEM's of mining equipment?					
Please indicate the current state of the relationship with the OEM					

What do you believe is a fair gross profit to the service contract of the OEM?	Less than -10%	
	Between -10% and -1%	
	Between 0% an 10%	
	Between 10% and 20%	
	More than 20%	
What do you believe is the gross profit to the service contract of the OEM?	Less than -10%	
	Between -10% and -1%	
	Between 0% an 10%	
	Between 10% and 20%	
	More than 20%	

Are there any other comments that you wish to bring under the attention of the management of the OEM, related to the service contract?

_____

_____

_____

Your participation in this survey is appreciated to assist the OEM to move closer to their vision.

APPENDIX B – Employee's Questionnaire

Service Contract Customer Satisfaction Questionnaire

This questionnaire aims to improve the OEM's customer relations with your customer, to the benefit of both organizations. It will be highly appreciated if you will complete this questionnaire. The key customer will also complete a questionnaire which is aligned to this questionnaire to identify potential gaps in the service delivery.

Please state the mine's name: _____

What is your highest position in your organization?

Contract Manager ☐

Other (please state) ☐ _____

How many years have you been involved with the service contracts of the OEM? _____ Years

This questionnaire which can generally be completed in 15 minutes, consists of three parts. The first part evaluates the importance of various strategic aspects to you regarding the service contract. The second part will provide the opportunity to rate the performance of the OEM regarding these various aspects. The last section provides you the opportunity to give any feedback that you would like to bring under the attention of the OEM's management that was not covered by the first two sections.

Please rate the importance of the aspects below for you as an employee on the scale provided by marking one "X" in the appropriate column:

Aspect	No Importance	Moderate	Important	Extremely
Selection process of the OEM's employees at the service contract				
Training of the OEM's employees				
Total remuneration of the employees of the OEM at the service contract				
Tools (spanners, screwdrivers, etc.) available to the OEM's employees to do their jobs				
The availability of a proper workshop facility to work on the machines				
The availability of parts to repair and maintain the machines				
The availability of service exchange components to repair and maintain the machines				
The quality of the repairs of the service exchange components				
The maintenance planning system of the OEM				
Technical information provided to the OEM artisans				
The importance that the OEM bonus system drives the satisfaction of your needs				
Good retention of employees by the OEM				
Good support by the supervisors to the artisans				
Good support by the OEM's managers on site to the total contract				
Good support by the OEM's head office to the total contract				
Technical support to the contract by the OEM's head office				
What is the importance of a positive attitude of the OEM's employees on site?				
The importance of employee satisfaction of all the OEM's employees on site				
Productiveness of the OEM's employees				
Information provided to you, the customer by the OEM				
What is the importance of the OEM's monthly report?				
Accuracy (acceptance) of the monthly report by all parties				
Quality of the repairs done on site by the OEM's employees				
Quality of the scheduled service done on site by the OEM's employees				
Invoicing accurately				
Value received by the customer				
Listening to your suggestions				
How important is it to have quality machine operators?				
The importance that the service contract meets your needs and requirements				
Customer satisfaction				
Customer loyalty				
Long term partnership				
Recommending the OEM to maintain equipment to others				
Adequacy of the service level agreement to your needs				
Correcting failures to comply to the service level agreement				
Comparing the OEM to others OEM's of mining equipment				
The management of the relationship with the customer on the service contract level				
The importance of what the OEM's profitability of the service contract should be				
The importance of what the OEM's profitability of the service contract is				

Please rate the performance of the aspects below as experienced by you as an employee on the scale provided by marking one "X" in the appropriate column:

Aspect	Very Poor	Poor	Average	Above	Excellent
How good is the selection process of the OEM's employees at the service contract?					
How good is the training of the OEM's employees?					
How good is the total remuneration of the employees of the OEM at the service contract?					
What is the availability of the tools needed by the OEM's employees to do their jobs?					
What is the availability of a proper workshop facility to work on the machines?					
What is the availability of parts to repair and maintain the machines?					
What is the availability of service exchange components to repair and maintain the machines?					
How good is the quality of the repairs of the service exchange components?					
How good is the maintenance planning system of the OEM?					
How good is the technical information that is provided to the OEM's artisans?					
How well does the OEM's bonus system drive the satisfaction of your needs?					
How good is the retention of employees by the OEM?					
How good is the support by the supervisors to the artisans?					
How good is the support by the OEM's managers on site to the total contract?					
How good is the support by the OEM's head office to the total contract?					
How good is the technical support to the contract by the OEM's head office?					
What is the attitude of the OEM's employees on site?					
How do you rate the employee satisfaction of all the OEM's employees on site?					
What is the productiveness of the OEM's employees?					
How good is the information provided to the customer by the OEM?					
How good is the OEM's monthly report?					
What is the accuracy (acceptance) of the monthly report by all parties?					
How good is the quality of the repairs done on site by the OEM's employees?					
How good is the quality of the scheduled service done on site by the OEM's employees?					
Please rate the accuracy of the invoicing					
Please rate the value received by the customer?					
How well does the OEM listening to the customer's suggestions?					
Please rate the quality of the machine operators?					
How well does the service contract meet the customer's and requirements?					
Please rate the customer satisfaction					
Please rate the customer loyalty					
What is the probability of a long term partnership with the OEM in the future?					
What is the probability of recommending the OEM's service contract to others?					
How adequate is the service level agreement to your needs?					
How well does the OEM correct failures of the service level agreement?					
How well does the OEM compare to other OEM's of mining equipment?					
Please indicate the current state of the relationship with the OEM					

What do you believe is a fair gross profit to the service contract of the OEM?	Less than -10%	
	Between -10% and -1%	
	Between 0% an 10%	
	Between 10% and 20%	
	More than 20%	
What do you believe is the gross profit to the service contract of the OEM?	Less than -10%	
	Between -10% and -1%	
	Between 0% an 10%	
	Between 10% and 20%	
	More than 20%	

Are there any other comments that you wish to bring under the attention of the management of the OEM, related to the service contract?

_____

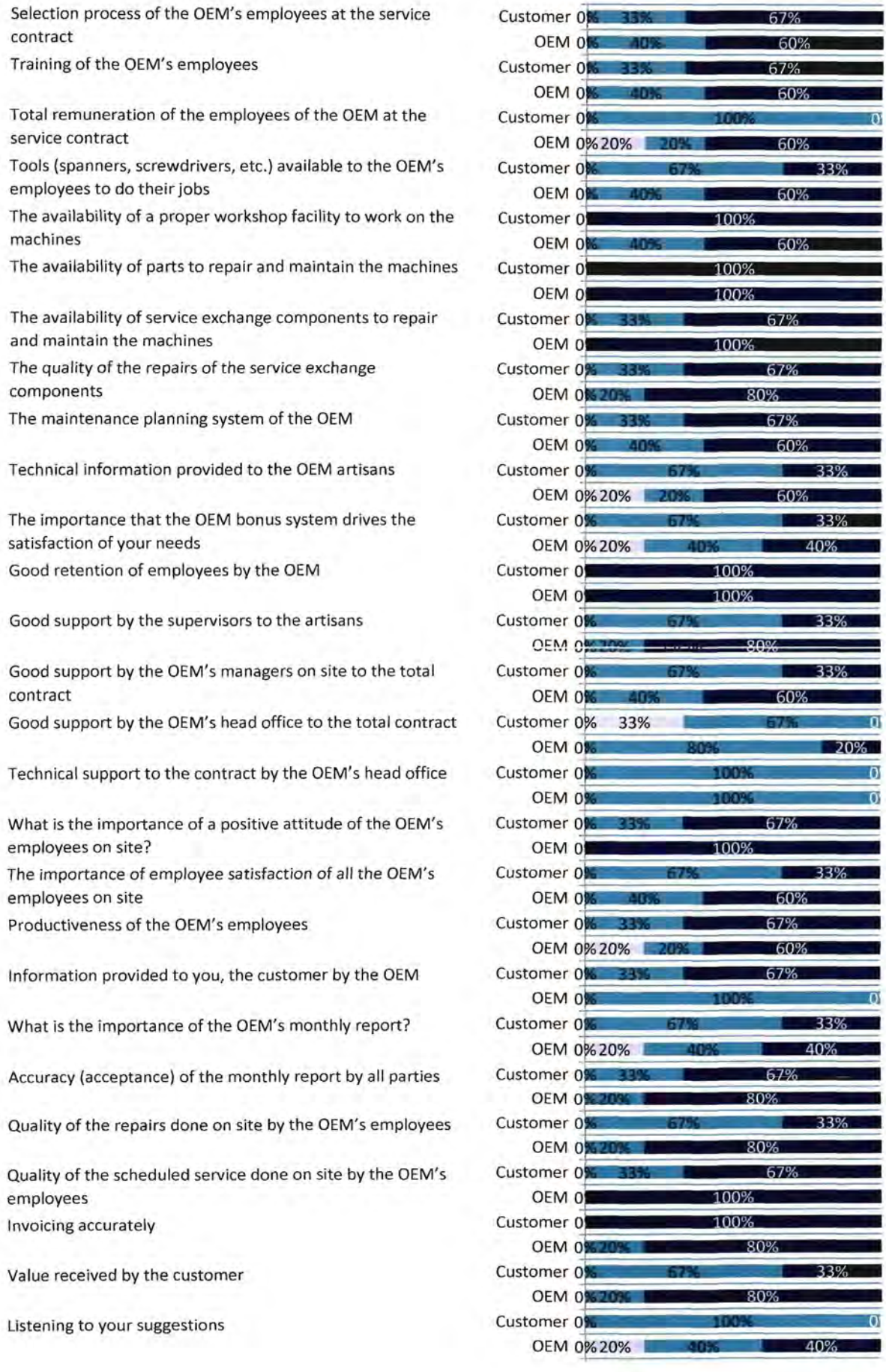
_____

_____

Your participation in this survey is appreciated to assist us to move closer to our vision.

APPENDIX C – Summary Response from Completed Questionnaires

Importance


Selection process of the OEM's employees at the service contract
Customer 0% 33% 67%
OEM 0% 40% 60%
Training of the OEM's employees
Customer 0% 33% 67%
OEM 0% 40% 60%
Total remuneration of the employees of the OEM at the service contract
Customer 0% 100% 0
OEM 0% 20% 20% 60%
Tools (spanners, screwdrivers, etc.) available to the OEM's employees to do their jobs
Customer 0% 67% 33%
OEM 0% 40% 60%
The availability of a proper workshop facility to work on the machines
Customer 0% 100%
OEM 0% 40% 60%
The availability of parts to repair and maintain the machines
Customer 0% 100%
OEM 0% 100%
The availability of service exchange components to repair and maintain the machines
Customer 0% 33% 67%
OEM 0% 100%
The quality of the repairs of the service exchange components
Customer 0% 33% 67%
OEM 0% 20% 80%
The maintenance planning system of the OEM
Customer 0% 33% 67%
OEM 0% 40% 60%
Technical information provided to the OEM artisans
Customer 0% 67% 33%
OEM 0% 20% 20% 60%
The importance that the OEM bonus system drives the satisfaction of your needs
Customer 0% 67% 33%
OEM 0% 20% 40% 40%
Good retention of employees by the OEM
Customer 0% 100%
OEM 0% 100%
Good support by the supervisors to the artisans
Customer 0% 67% 33%
OEM 0% 20% 80%
Good support by the OEM's managers on site to the total contract
Customer 0% 67% 33%
OEM 0% 40% 60%
Good support by the OEM's head office to the total contract
Customer 0% 33% 67% 0
OEM 0% 80% 20%
Technical support to the contract by the OEM's head office
Customer 0% 100% 0
OEM 0% 100% 0
What is the importance of a positive attitude of the OEM's employees on site?
Customer 0% 33% 67%
OEM 0% 100%
The importance of employee satisfaction of all the OEM's employees on site
Customer 0% 67% 33%
OEM 0% 40% 60%
Productiveness of the OEM's employees
Customer 0% 33% 67%
OEM 0% 20% 20% 60%
Information provided to you, the customer by the OEM
Customer 0% 33% 67%
OEM 0% 100% 0
What is the importance of the OEM's monthly report?
Customer 0% 67% 33%
OEM 0% 20% 40% 40%
Accuracy (acceptance) of the monthly report by all parties
Customer 0% 33% 67%
OEM 0% 20% 80%
Quality of the repairs done on site by the OEM's employees
Customer 0% 67% 33%
OEM 0% 20% 80%
Quality of the scheduled service done on site by the OEM's employees
Customer 0% 33% 67%
OEM 0% 100%
Invoicing accurately
Customer 0% 100%
OEM 0% 20% 80%
Value received by the customer
Customer 0% 67% 33%
OEM 0% 20% 80%
Listening to your suggestions
Customer 0% 100% 0
OEM 0% 20% 40% 40%

How important is it to have quality machine operators?

The importance that the service contract meets your needs and requirements

Customer satisfaction

Customer loyalty

Long term partnership

Recommending the OEM to maintain equipment to others

Adequacy of the service level agreement to your needs

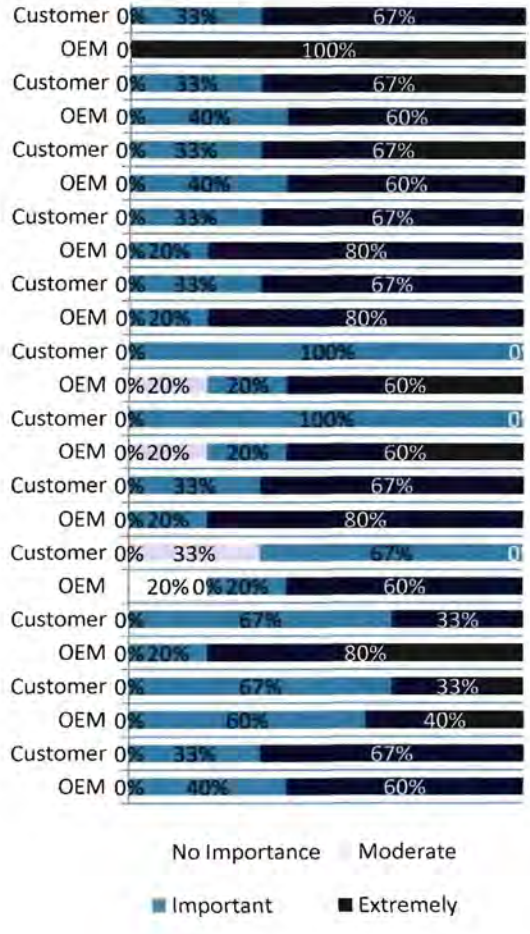
Correcting failures to comply to the service level agreement

Comparing the OEM to others OEM's of mining equipment

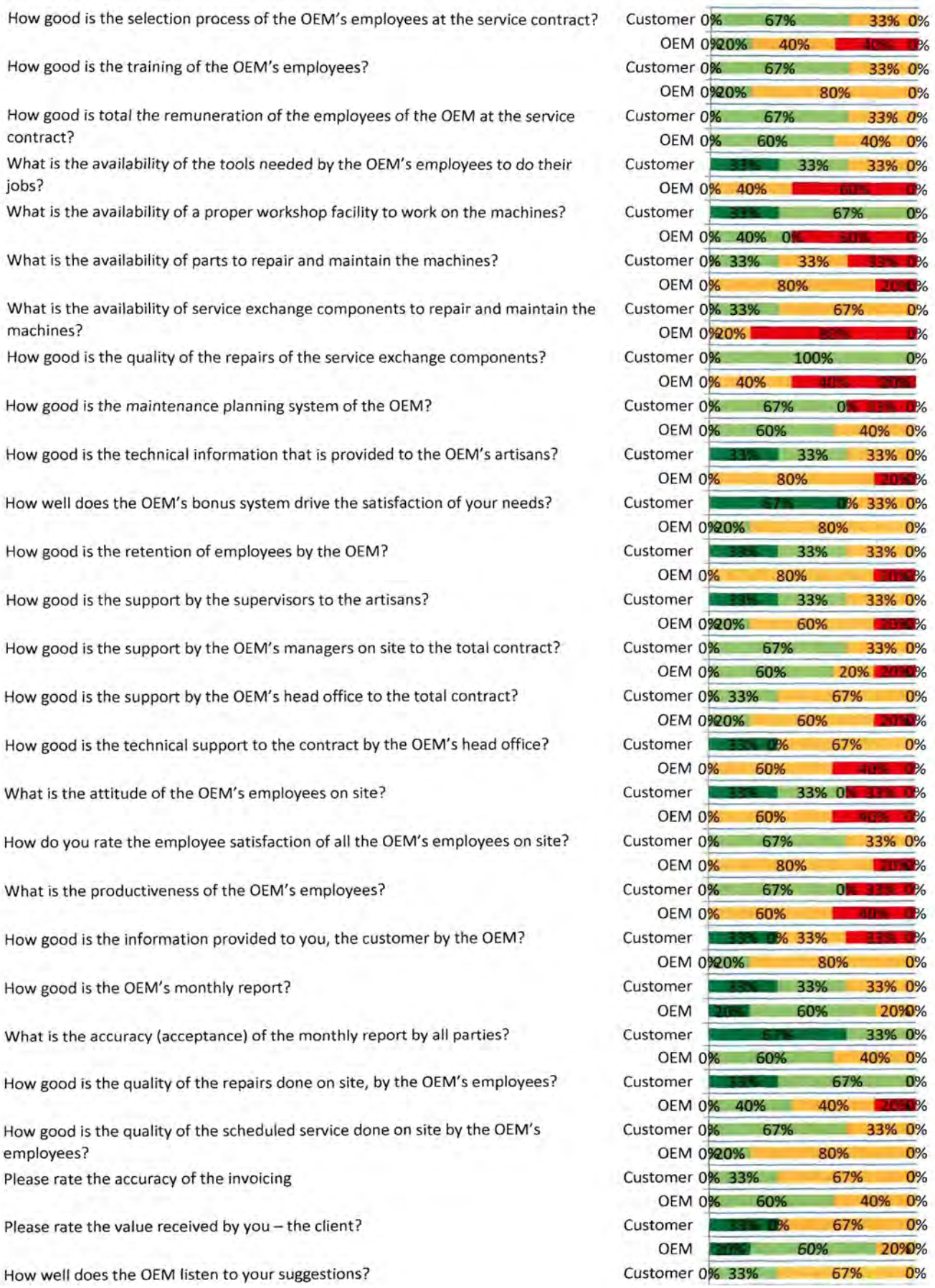
The management of the relationship with the customer on the service contract level

The importance of what the OEM's profitability of the service contract should be

The importance of what the OEM's profitability of the service contract is



Performance



Please rate the quality of the machine operators?

How well does the service contract meet your needs and requirements?

Please rate your customer satisfaction

Please rate your customer loyalty

What is the probability of a long term partnership with the OEM in the future?

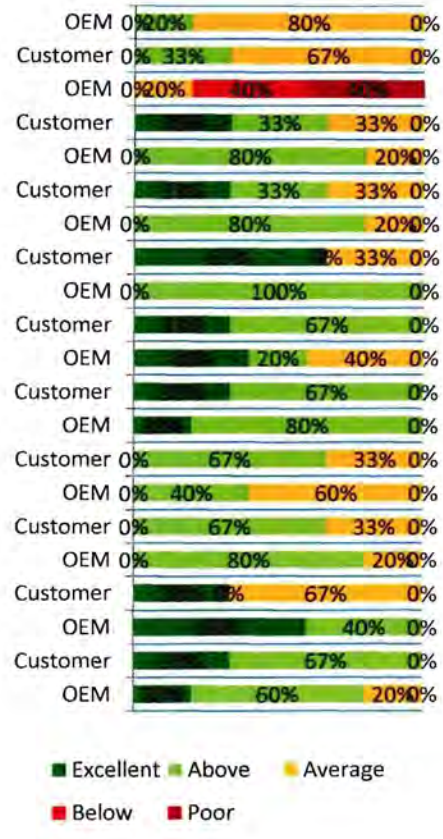
What is the probability of recommending the OEM's service contract to others?

How adequate is the service level agreement to your needs?

How well does the OEM correct failures of the service level agreement?

How well does the OEM compare to other OEM's of mining equipment?

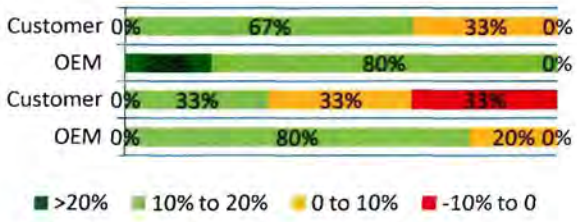
Please indicate the current state of the relationship with the OEM



Profitability

What do you believe is a fair gross profit to the service contract of the OEM?

What do you believe is the gross profit to the service contract of the OEM?



Comments

i. Training and Future as discussed with the Manager
ii. The OEM needs to move people around and internal quality (safety, system, etc.) audits.
iii. The service rendered is of a high quality with availability being high. You've got a good team on my shaft, thank you.
iv. Deliver machines on time as per spec - Don't deliver rig without telescopic boom
v. Artisan Retention – salary

APPENDIX D – Chi-Square Results

Rejection Criteria (Alfa = 0.25 & degrees of freedom = 3) 4.108

Importance

Aspect	Viewpoint	Expected Frequency				Chi-square table				X^2
		No Importance	Moderate	Important	Extremely	No Importance	Moderate	Important	Extremely	
Selection process of the OEM's employees at the service contract	Customer	0.000	0.000	1.125	1.875	0.000	0.000	0.014	0.008	
	OEM	0.000	0.000	1.875	3.125	0.000	0.000	0.008	0.005	0.036
Training of the OEM's employees	Customer	0.000	0.000	1.125	1.875	0.000	0.000	0.014	0.008	
	OEM	0.000	0.000	1.875	3.125	0.000	0.000	0.008	0.005	0.036
Total remuneration of the employees of the OEM at the service contract	Customer	0.000	0.375	1.500	1.125	0.000	0.375	1.500	1.125	
	OEM	0.000	0.625	2.500	1.875	0.000	0.225	0.900	0.675	4.800
Tools (spanners, screwdrivers, etc.) available to the OEM's employees to do their jobs	Customer	0.000	0.000	1.500	1.500	0.000	0.000	0.167	0.167	
	OEM	0.000	0.000	2.500	2.500	0.000	0.000	0.100	0.100	0.533
The availability of a proper workshop facility to work on the machines	Customer	0.000	0.000	0.750	2.250	0.000	0.000	0.750	0.250	
	OEM	0.000	0.000	1.250	3.750	0.000	0.000	0.450	0.150	1.600
The availability of parts to repair and maintain the machines	Customer	0.000	0.000	0.000	3.000	0.000	0.000	0.000	0.000	
	OEM	0.000	0.000	0.000	5.000	0.000	0.000	0.000	0.000	-
The availability of service exchange components to repair and maintain the machines	Customer	0.000	0.000	0.375	2.625	0.000	0.000	1.042	0.149	
	OEM	0.000	0.000	0.625	4.375	0.000	0.000	0.625	0.089	1.905
The quality of the repairs of the service exchange components	Customer	0.000	0.000	0.750	2.250	0.000	0.000	0.083	0.028	
	OEM	0.000	0.000	1.250	3.750	0.000	0.000	0.050	0.017	0.178
The maintenance planning system of the OEM	Customer	0.000	0.000	1.125	1.875	0.000	0.000	0.014	0.008	
	OEM	0.000	0.000	1.875	3.125	0.000	0.000	0.008	0.005	0.036
Technical information provided to the OEM artisans	Customer	0.000	0.375	1.125	1.500	0.000	0.375	0.681	0.167	
	OEM	0.000	0.625	1.875	2.500	0.000	0.225	0.408	0.100	1.956

The importance that the OEM bonus system drives the satisfaction of your needs	Customer		0.000	0.375	1.500	1.125		0.000	0.375	0.167	0.014	
	OEM		0.000	0.625	2.500	1.875		0.000	0.225	0.100	0.008	0.889
Good retention of employees by the OEM	Customer		0.000	0.000	0.000	3.000		0.000	0.000	0.000	0.000	
	OEM		0.000	0.000	0.000	5.000		0.000	0.000	0.000	0.000	-
Good support by the supervisors to the artisans	Customer		0.000	0.000	1.125	1.875		0.000	0.000	0.681	0.408	
	OEM		0.000	0.000	1.875	3.125		0.000	0.000	0.408	0.245	1.742
Good support by the OEM's managers on site to the total contract	Customer		0.000	0.000	1.500	1.500		0.000	0.000	0.167	0.167	
	OEM		0.000	0.000	2.500	2.500		0.000	0.000	0.100	0.100	0.533
Good support by OEM's head office to the total contract	Customer		0.000	0.375	2.250	0.375		0.000	1.042	0.028	0.375	
	OEM		0.000	0.625	3.750	0.625		0.000	0.625	0.017	0.225	2.311
Technical support to the contract by the OEM's head office	Customer		0.000	0.000	3.000	0.000		0.000	0.000	0.000	0.000	
	OEM		0.000	0.000	5.000	0.000		0.000	0.000	0.000	0.000	-
What is the importance of a positive attitude of the OEM's employees on site?	Customer		0.000	0.000	0.375	2.625		0.000	0.000	1.042	0.149	
	OEM		0.000	0.000	0.625	4.375		0.000	0.000	0.625	0.089	1.905
The importance of employee satisfaction of all the OEM's employees on site	Customer		0.000	0.000	1.500	1.500		0.000	0.000	0.167	0.167	
	OEM		0.000	0.000	2.500	2.500		0.000	0.000	0.100	0.100	0.533
Productiveness of the OEM's employees	Customer		0.000	0.375	0.750	1.875		0.000	0.375	0.083	0.008	
	OEM		0.000	0.625	1.250	3.125		0.000	0.225	0.050	0.005	0.747
Information provided to you, the customer by the OEM	Customer		0.000	0.000	2.250	0.750		0.000	0.000	0.694	2.083	
	OEM		0.000	0.000	3.750	1.250		0.000	0.000	0.417	1.250	4.444
What is the importance of the OEM's monthly report?	Customer		0.000	0.375	1.500	1.125		0.000	0.375	0.167	0.014	
	OEM		0.000	0.625	2.500	1.875		0.000	0.225	0.100	0.008	0.889
Accuracy (acceptance) of the monthly report by all parties	Customer		0.000	0.000	0.750	2.250		0.000	0.000	0.083	0.028	
	OEM		0.000	0.000	1.250	3.750		0.000	0.000	0.050	0.017	0.178

Quality of the repairs done on site by the OEM's employees	Customer		0.000	0.000	1.125	1.875		0.000	0.000	0.681	0.408	
	OEM		0.000	0.000	1.875	3.125		0.000	0.000	0.408	0.245	1.742
Quality of the scheduled service done on site by the OEM's employees	Customer		0.000	0.000	0.375	2.625		0.000	0.000	1.042	0.149	
	OEM		0.000	0.000	0.625	4.375		0.000	0.000	0.625	0.089	1.905
Invoicing accurately	Customer		0.000	0.000	0.375	2.625		0.000	0.000	0.375	0.054	
	OEM		0.000	0.000	0.625	4.375		0.000	0.000	0.225	0.032	0.686
Value received by you – the client	Customer		0.000	0.000	1.125	1.875		0.000	0.000	0.681	0.408	
	OEM		0.000	0.000	1.875	3.125		0.000	0.000	0.408	0.245	1.742
Listening to your suggestions	Customer		0.000	0.375	1.875	0.750		0.000	0.375	0.675	0.750	
	OEM		0.000	0.625	3.125	1.250		0.000	0.225	0.405	0.450	2.880
How important is it to have quality machine operators?	Customer		0.000	0.000	0.375	2.625		0.000	0.000	1.042	0.149	
	OEM		0.000	0.000	0.625	4.375		0.000	0.000	0.625	0.089	1.905
The importance that the service contract meets your needs and requirements	Customer		0.000	0.000	1.125	1.875		0.000	0.000	0.014	0.008	
	OEM		0.000	0.000	1.875	3.125		0.000	0.000	0.008	0.005	0.036
Customer satisfaction	Customer		0.000	0.000	1.125	1.875		0.000	0.000	0.014	0.008	
	OEM		0.000	0.000	1.875	3.125		0.000	0.000	0.008	0.005	0.036
Customer loyalty	Customer		0.000	0.000	0.750	2.250		0.000	0.000	0.083	0.028	
	OEM		0.000	0.000	1.250	3.750		0.000	0.000	0.050	0.017	0.178
Long term partnership	Customer		0.000	0.000	0.750	2.250		0.000	0.000	0.083	0.028	
	OEM		0.000	0.000	1.250	3.750		0.000	0.000	0.050	0.017	0.178
Recommending the OEM to maintain equipment to others	Customer		0.000	0.375	1.500	1.125		0.000	0.375	1.500	1.125	
	OEM		0.000	0.625	2.500	1.875		0.000	0.225	0.900	0.675	4.800
Adequacy of the service level agreement to your needs	Customer		0.000	0.375	1.500	1.125		0.000	0.375	1.500	1.125	
	OEM		0.000	0.625	2.500	1.875		0.000	0.225	0.900	0.675	4.800

Correcting failures to comply to the service level agreement	Customer		0.000	0.000	0.750	2.250		0.000	0.000	0.083	0.028	
	OEM		0.000	0.000	1.250	3.750		0.000	0.000	0.050	0.017	0.178
Comparing the OEM to other OEM's of mining equipment	Customer		0.375	0.375	1.125	1.125		0.375	1.042	0.681	1.125	
	OEM		0.625	0.625	1.875	1.875		0.225	0.625	0.408	0.675	5.156
The management of the relationship with you the customer on the service contract level	Customer		0.000	0.000	1.125	1.875		0.000	0.000	0.681	0.408	
	OEM		0.000	0.000	1.875	3.125		0.000	0.000	0.408	0.245	1.742
The importance of what the OEM's profitability of the service contract should be	Customer		0.000	0.000	1.875	1.125		0.000	0.000	0.008	0.014	
	OEM		0.000	0.000	3.125	1.875		0.000	0.000	0.005	0.008	0.036
The importance of what the OEM's profitability of the service contract is	Customer		0.000	0.000	1.125	1.875		0.000	0.000	0.014	0.008	
	OEM		0.000	0.000	1.875	3.125		0.000	0.000	0.008	0.005	0.036

Rejection Criteria (Alfa = 0.25 & degrees of freedom = 4) 5.385

Performance

Aspect	Viewpoint	Expected Frequency: Very Poor	Poor	Average	Above	Excel-lent	Chi-square table: Very Poor	Poor	Average	Above	Excel-lent	X^2
How good is the selection process of the OEM's employees at the service contract?	Customer	0.000	0.750	1.125	1.125	0.000	0.000	0.750	0.014	0.681	0.000	2.311
	OEM	0.000	1.250	1.875	1.875	0.000	0.000	0.450	0.008	0.408	0.000	
How good is the training of the OEM's employees?	Customer	0.000	0.000	1.875	1.125	0.000	0.000	0.000	0.408	0.681	0.000	1.742
	OEM	0.000	0.000	3.125	1.875	0.000	0.000	0.000	0.245	0.408	0.000	
How good is the total remuneration of the employees of OEM at the service contract?	Customer	0.000	0.000	1.125	1.875	0.000	0.000	0.000	0.014	0.008	0.000	0.036
	OEM	0.000	0.000	1.875	3.125	0.000	0.000	0.000	0.008	0.005	0.000	
What is the availability of the tools needed by the OEM's employees to do their jobs?	Customer	0.000	1.125	1.125	0.375	0.375	0.000	1.125	0.014	1.042	1.042	5.156
	OEM	0.000	1.875	1.875	0.625	0.625	0.000	0.675	0.008	0.625	0.625	
What is the availability of a proper workshop facility to work on the machines?	Customer	0.000	1.125	0.000	1.500	0.375	0.000	1.125	0.000	0.167	1.042	3.733
	OEM	0.000	1.875	0.000	2.500	0.625	0.000	0.675	0.000	0.100	0.625	
What is the availability of parts to repair and maintain the machines?	Customer	0.000	0.750	1.875	0.375	0.000	0.000	0.083	0.408	1.042	0.000	2.453
	OEM	0.000	1.250	3.125	0.625	0.000	0.000	0.050	0.245	0.625	0.000	
What is the availability of service exchange components to repair and maintain the machines?	Customer	0.000	1.500	1.125	0.375	0.000	0.000	1.500	0.681	1.042	0.000	5.156
	OEM	0.000	2.500	1.875	0.625	0.000	0.000	0.900	0.408	0.625	0.000	
How good is the quality of the repairs of the service exchange components?	Customer	0.375	0.750	0.750	1.125	0.000	0.375	0.750	0.750	3.125	0.000	8.000
	OEM	0.625	1.250	1.250	1.875	0.000	0.225	0.450	0.450	1.875	0.000	
How good is the maintenance planning system of the OEM?	Customer	0.000	0.375	0.750	1.875	0.000	0.000	1.042	0.750	0.008	0.000	2.880
	OEM	0.000	0.625	1.250	3.125	0.000	0.000	0.625	0.450	0.005	0.000	
How good is the technical information which is provided to the OEM's artisans?	Customer	0.000	0.375	1.875	0.375	0.375	0.000	0.375	0.408	1.042	1.042	4.587
	OEM	0.000	0.625	3.125	0.625	0.625	0.000	0.225	0.245	0.625	0.625	

How well does the OEM's bonus system drive the satisfaction of your needs?	Customer	0.000	0.000	1.875	0.375	0.750	0.000	0.000	0.408	0.375	2.083	4.587
	OEM	0.000	0.000	3.125	0.625	1.250	0.000	0.000	0.245	0.225	1.250	
How good is the retention of employees by the OEM?	Customer	0.000	0.375	1.875	0.375	0.375	0.000	0.375	0.408	1.042	1.042	4.587
	OEM	0.000	0.625	3.125	0.625	0.625	0.000	0.225	0.245	0.625	0.625	
How good is the support by the supervisors to the artisans?	Customer	0.000	0.375	1.500	0.750	0.375	0.000	0.375	0.167	0.083	1.042	2.667
	OEM	0.000	0.625	2.500	1.250	0.625	0.000	0.225	0.100	0.050	0.625	
How good is the support by the OEM's managers on site, to the total contract?	Customer	0.000	0.375	0.750	1.875	0.000	0.000	0.375	0.083	0.008	0.000	0.747
	OEM	0.000	0.625	1.250	3.125	0.000	0.000	0.225	0.050	0.005	0.000	
How good is the support by the OEM's head office to the total contract?	Customer	0.000	0.375	1.875	0.750	0.000	0.000	0.375	0.008	0.083	0.000	0.747
	OEM	0.000	0.625	3.125	1.250	0.000	0.000	0.225	0.005	0.050	0.000	
How good is the technical support to the contract by the OEM's head office?	Customer	0.000	0.750	1.875	0.000	0.375	0.000	0.750	0.008	0.000	1.042	2.880
	OEM	0.000	1.250	3.125	0.000	0.625	0.000	0.450	0.005	0.000	0.625	
What is the attitude of the OEM's employees on site?	Customer	0.000	1.125	1.125	0.375	0.375	0.000	0.014	1.125	1.042	1.042	5.156
	OEM	0.000	1.875	1.875	0.625	0.625	0.000	0.008	0.675	0.625	0.625	
How do you rate the employee satisfaction of all the OEM's employees on site?	Customer	0.000	0.375	1.875	0.750	0.000	0.000	0.375	0.408	2.083	0.000	4.587
	OEM	0.000	0.625	3.125	1.250	0.000	0.000	0.225	0.245	1.250	0.000	
What is the productiveness of the OEM's employees?	Customer	0.000	1.125	1.125	0.750	0.000	0.000	0.014	1.125	2.083	0.000	5.156
	OEM	0.000	1.875	1.875	1.250	0.000	0.000	0.008	0.675	1.250	0.000	
How good is the information provided to you, the customer by the OEM?	Customer	0.000	0.375	1.875	0.375	0.375	0.000	1.042	0.408	0.375	1.042	4.587
	OEM	0.000	0.625	3.125	0.625	0.625	0.000	0.625	0.245	0.225	0.625	
How good is the OEM's monthly report?	Customer	0.000	0.000	0.750	1.500	0.750	0.000	0.000	0.083	0.167	0.083	0.533
	OEM	0.000	0.000	1.250	2.500	1.250	0.000	0.000	0.050	0.100	0.050	
What is the accuracy (acceptance) of the monthly report by all parties?	Customer	0.000	0.000	0.750	1.500	0.750	0.000	0.000	0.750	0.167	2.083	4.800
	OEM	0.000	0.000	1.250	2.500	1.250	0.000	0.000	0.450	0.100	1.250	

How good is the quality of the repairs done on site, by the OEM's employees?	Customer	0.000	0.375	0.750	1.500	0.375	0.000	0.375	0.750	0.167	1.042	3.733
	OEM	0.000	0.625	1.250	2.500	0.625	0.000	0.225	0.450	0.100	0.625	
How good is the quality of the scheduled service done on site by the OEM's employees?	Customer	0.000	0.000	1.875	1.125	0.000	0.000	0.000	0.408	0.681	0.000	1.742
	OEM	0.000	0.000	3.125	1.875	0.000	0.000	0.000	0.245	0.408	0.000	
Please rate the accuracy of the invoicing	Customer	0.000	0.000	1.500	1.500	0.000	0.000	0.000	0.167	0.167	0.000	0.533
	OEM	0.000	0.000	2.500	2.500	0.000	0.000	0.000	0.100	0.100	0.000	
Please rate the value received by you – the client?	Customer	0.000	0.000	1.125	1.125	0.750	0.000	0.000	0.681	1.125	0.083	3.022
	OEM	0.000	0.000	1.875	1.875	1.250	0.000	0.000	0.408	0.675	0.050	
How well does the OEM listen to your suggestions?	Customer	0.000	0.000	2.250	0.750	0.000	0.000	0.000	0.028	0.083	0.000	0.178
	OEM	0.000	0.000	3.750	1.250	0.000	0.000	0.000	0.017	0.050	0.000	
Please rate the performance of the machine operators?	Customer	0.750	0.750	1.125	0.375	0.000	0.750	0.750	0.681	1.042	0.000	5.156
	OEM	1.250	1.250	1.875	0.625	0.000	0.450	0.450	0.408	0.625	0.000	
How well does the service contract meet your needs and requirements?	Customer	0.000	0.000	0.750	1.875	0.375	0.000	0.000	0.083	0.408	1.042	2.453
	OEM	0.000	0.000	1.250	3.125	0.625	0.000	0.000	0.050	0.245	0.625	
Please rate your customer satisfaction	Customer	0.000	0.000	0.750	1.875	0.375	0.000	0.000	0.083	0.408	1.042	2.453
	OEM	0.000	0.000	1.250	3.125	0.625	0.000	0.000	0.050	0.245	0.625	
Please rate your customer loyalty	Customer	0.000	0.000	0.375	1.875	0.750	0.000	0.000	1.042	1.875	2.083	8.000
	OEM	0.000	0.000	0.625	3.125	1.250	0.000	0.000	0.625	1.125	1.250	
What is the probability of a long term partnership with the OEM in the future?	Customer	0.000	0.000	0.750	1.125	1.125	0.000	0.000	0.750	0.681	0.014	2.311
	OEM	0.000	0.000	1.250	1.875	1.875	0.000	0.000	0.450	0.408	0.008	
What is the probability of recommending the OEM's service contract to others?	Customer	0.000	0.000	0.000	2.250	0.750	0.000	0.000	0.000	0.028	0.083	0.178
	OEM	0.000	0.000	0.000	3.750	1.250	0.000	0.000	0.000	0.017	0.050	
How adequate is the service level agreement to your needs?	Customer	0.000	0.000	1.500	1.500	0.000	0.000	0.000	0.167	0.167	0.000	0.533
	OEM	0.000	0.000	2.500	2.500	0.000	0.000	0.000	0.100	0.100	0.000	

How well does the OEM correct failures of the service level agreement?	Customer		0.000	0.000	0.750	2.250	0.000		0.000	0.000	0.083	0.028	0.000		0.178
	OEM		0.000	0.000	1.250	3.750	0.000		0.000	0.000	0.050	0.017	0.000		
How well does the OEM compare to other OEM's of mining equipment?	Customer		0.000	0.000	0.750	0.750	1.500		0.000	0.000	2.083	0.750	0.167		4.800
	OEM		0.000	0.000	1.250	1.250	2.500		0.000	0.000	1.250	0.450	0.100		
Please indicate the current state of the relationship with the OEM	Customer		0.000	0.000	0.375	1.875	0.750		0.000	0.000	0.375	0.008	0.083		0.747
	OEM		0.000	0.000	0.625	3.125	1.250		0.000	0.000	0.225	0.005	0.050		
What do you believe is a fair gross profit to the service contract of the OEM?	Customer		0.000	0.000	0.375	2.250	0.375		0.000	0.000	1.042	0.028	0.375		2.311
	OEM		0.000	0.000	0.625	3.750	0.625		0.000	0.000	0.625	0.017	0.225		
What do you believe is the gross profit to the service contract of the OEM?	Customer		0.000	0.375	0.750	1.875	0.000		0.000	1.042	0.083	0.408	0.000		2.453
	OEM		0.000	0.625	1.250	3.125	0.000		0.000	0.625	0.050	0.245	0.000		