THE ROLE OF TOTAL QUALITY MANAGEMENT (TQM) IN IMPROVING QUALITY AND ORGANISATIONAL PERFORMANCE IN FOOTWEAR MANUFACTURING ORGANISATIONS IN KWAZULU-NATAL

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Submitted by

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ABSTRACT

The purpose of this study is to determine the impact of Total Quality Management (TQM) elements of Leadership, Customer Focus, and Employee Involvement on Quality Improvement and Organisational Performance, as well as the relationship between Quality Improvement and Organisational Performance.

A questionnaire was administered to a convenience sample of 32 footwear manufacturing organisations in the eThekwini region of Kwazulu-Natal. Confirmatory Factor Analysis was used to verify the reliability and validity of the measuring instrument. Regression and correlation analysis was developed to test the relationship between the TQM elements, Quality Improvement and Organisational Performance.

The TQM elements used in this study were Leadership, Customer Focus, and Employee involvement. The findings of this showed that Leadership and Customer Focus had a positive influence on Quality Improvement. Also, Leadership was found to have a positive influence on Organisational Performance. In addition, a positive relationship existed between Quality Improvement and Organisational Performance.

The results of this study could provide valuable information to managers of footwear manufacturing organisations in identifying those elements that have a positive effect on improving quality. Hence, allocating resources to these elements would enable footwear manufacturing organisations to enhance the performance of their organisations.

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CHAPTER 1

INTRODUCTION AND OVERVIEW OF THE STUDY

1.1 INTRODUCTION

The impact of global competition, especially from the Far East, is driving organisations to place greater emphasis on providing customers with high quality products (Tan, 1997:150). Consequently, improving the quality of products and processes (quality improvement) is a major challenge facing both South African organisations as well as organisations globally.

1.2 DEFINITIONS AND TERMINOLOGY

1.2.1 Quality defined

According to Kumar, Garg and Garg (2009:607), the meaning of quality is viewed differently by authors and scholars. For example, Heizer and Render (2006:195) are of the opinion that the definition of quality will depend on whether quality is viewed as conformance to product specifications or as conformance to customer requirements. This approach to quality is supported by Grutter (2010:243) who views quality as satisfying the expectations of customers. Furthermore, he is of the belief that it is the customer who ultimately determines the quality of products, and that customer satisfaction is more likely if the product or service conforms to specifications.

A different position is held by Pycraft, Singh, Phihlela, Slack, Chambers and Johnston (2010:503) who are of the opinion that a manufacturer's perspective of quality is concerned with making a product that is free of defects and conforms to design specifications. They also suggest that the customers' perspective on quality pertains to functionality and whether the product is fit for its purpose.

It is evident from the review above that the authors are in agreement that the customer plays a significant role in determining product quality. Therefore, it is essential for organisations to manufacture quality products to meet the needs of customers. Improvement in quality of products and processes can be achieved by adopting the core elements of Total Quality Management (TQM).

1.2.2 Total Quality Management (TQM)

TQM is considered as a philosophical approach to quality improvement (Slack, Chambers and Johnston, 2010:508). Mehra and Ranganathan (2008:913) are of the view that quality improvement is not only a philosophy but also a way of life, and recommend Total Quality Management (TQM) as a means of achieving this. Bhat and Rajeshekar (2009:261) concur that many organisations were using TQM as an important quality improvement technique to achieve success. They stated that the use of TQM globally across different industries and sectors has resulted in improvement in product quality and enhanced the performance of organisations.

Over the years, various TQM models/frameworks have been presented by a number of authors and scholars. For example, Greasley (2006:397) summarised the models presented by quality gurus like Deming, Juran, and Crosby into three main elements: Customer Focus, Employee Involvement, and Continuous Improvement.

Stevenson (2009:427) also listed these elements as the three major elements of TQM. In addition to these three elements, Chase, Jacobs, and Aquilano (2007:321) highlighted an additional element, namely, Leadership. They felt that a strong commitment to quality from top management of the organisation was required to achieve outstanding quality. Cai (2009:370), citing Dean and Bowden (1994), indicated that Customer Focus is a fundamental issue in TQM, and can be achieved by designing products that satisfy the needs of customers.

Hence, it can be inferred from the above review that organisations need to recognise the importance of TQM elements in quality improvements. These elements of TQM, especially Leadership (top management commitment), Employee Involvement, and Customer Focus, are of vital importance to the success of an organisation.

1.3 PROBLEM STATEMENT

As indicated in the literature survey, much research has been conducted globally on the relationship between TQM and organisational performance. However, very little is known about the effect of TQM elements on quality performance in South Africa, especially in the context of the footwear manufacturing organisations. Since the lifting of trade restrictions by the South African Government, these organisations have been facing a major challenge from international organisations. Consequently, South African footwear manufacturing organisations needed to adopt new approaches in attaining a competitive advantage. Thus, employing TQM elements in achieving quality performance becomes fundamentally important for these footwear manufacturing organisations to gain a competitive advantage.

Hence, this study will attempt to bridge the gap in research and to assist footwear manufacturing organisations in dealing with the effect of the TQM elements of Leadership, Employee Involvement, and Customer Focus on improving quality and enhancing Organisational Performance.

1.4 AIMS AND OBJECTIVES

1.4.1 Aim

The aim of this study is to demonstrate the role of TQM elements in improving quality and enhancing Organisational Performance in footwear manufacturing organisations in the eThekwini region of Kwazulu-Natal. Hence, this study will analyse the TQM elements of Leadership, Customer Focus, and Employee Involvement and their influence on Quality Improvement and Organisational Performance.

1.4.2 Objectives

The objectives of this study are listed below.

(1) To develop a research framework indicating the relationship between:

- the three TQM elements and Quality Improvement;
- the three TQM elements and Organisational Performance;
- Quality Improvement and Organisational Performance.

(2) To conduct a preliminary study using a questionnaire addressed to quality managers of selected footwear manufacturing organisations to verify the reliability of the measuring instrument.

(3) To conduct a survey of a sample of footwear manufacturing organisations regarding their responses in respect of the impact of the TQM elements on improving quality and enhancing Organisational Performance through customer satisfaction.

1.5 RATIONALE FOR THE STUDY

As indicated previously, much research has been conducted on the relationship between TQM and Organisational Performance in developed countries around the world but very little is known about the role of TQM elements in the South African manufacturing industry. This view is supported by an advanced search of articles on the Sabinet database under the title “Total Quality Management” for the years 2005-2010. This search revealed 41 hits. The focus of these research studies was on healthcare, service delivery by state institutions, and education. Thus, it was evident from this search that research in the manufacturing sector, and especially in footwear manufacturing, was lacking. In addition, according to Tan (1997:150), increased competition from organisations in the Eastern European bloc and Far East were driving many organisations in western countries to find ways to improve productivity, efficiency, and product quality. Hence, this study will attempt to show that South African organisations, in order to maintain a competitive advantage, should employ the key elements of TQM with a view to improving quality and enhancing Organisational Performance through customer satisfaction. Further, it is hoped that the findings of this study will encourage research in other manufacturing sectors and the service sector.

1.6 SCOPE OF THE STUDY

The study will focus on footwear manufacturing organisations in the eThekwini region. These regions include the industrial areas of Durban (Central), the South Coast (Clairwood, Jacobs, and Isipingo), Pinetown, the North Coast (Durban North, Umgeni Business Park, and Springfield Park). Extending the study beyond this region will not be feasible due to time and cost considerations.

1.7 LITERATURE REVIEW

Numerous studies (as indicated below) have been undertaken on the role of TQM elements in enhancing Organisational Performance in both manufacturing and service organisations globally. Some studies were undertaken in specific industries whilst others were of a comparative nature. A brief review of some of these studies is presented below.

Chin, Rao Tummala, and Chan (2003:1051-1083) carried out a survey of the implementation of TQM elements in the Hong Kong electronics and toy products organisations. These organisations were required to indicate the extent to which TQM elements were being implemented and practiced.

The seven TQM elements used in their study were Customer Focus, Leadership, Strategic Planning, Design Quality, Speed and Prevention, Employee Involvement, Fact-based Management, and Continuous Improvement. Their study established that both Hong Kong industries regarded Customer Focus as the most important TQM element.

Mady (2009:214-233) conducted a survey of TQM implementation in two Kuwaiti industrial sectors, namely, food processing and refractors. The TQM elements of Customer Focus, Employee Involvement, and Core Quality Practices were used in their study. He found that these three TQM elements were used in both manufacturing sectors to improve quality.

Oschman, Stroh, and Auriacombe (2006:131-150) studied the attitude of personnel at South African Air force bases towards the implementation of TQM. They developed a framework consisting of six core elements and eight supporting elements. They found that the attitude of respondents in three out of the six core elements (Leadership, Strategic Planning, and Employee Involvement) were very positive with respect to quality improvements.

In their review of TQM and innovation, Martinez-Lorente, Dewhurst, and Dale (1999:12-19) found Customer Focus to be one of the key elements of TQM. They maintained that organisations, in order to be innovative, needed to identify the current and future needs of customers, their level of satisfaction, as well as their loyalty to an organization.

Fotopoulos and Psomas (2009:150-163) used both “soft” and “hard” elements of TQM in conducting their research in IS0 9001:2000 certified Greek organisations. They identified Leadership, Strategic Planning, Employee Involvement, Supplier Relations, Customer Focus, Process Management, Continuous Improvement, Information and Analysis, Knowledge and Education as the soft elements of TQM. The hard elements included quality management tools and techniques. The results of their study showed that the soft” elements were more significant in their contributions to Quality Improvement than the hard elements.

Arumugam, Ooi, and Fong (2008:636-650) explored the relationship between TQM elements and Organisational Performance in the Malaysian ISO 9001:2000 certified manufacturing organisations. The TQM elements used in their study were Leadership, Process Management, Information and Analysis, Customer Focus, Supplier Relations, Quality System Improvement, Continual Improvement, and Employee Involvement. They found a positive relationship between Customer Focus and Organisational Performance.

The above review shows that each study investigated a number of TQM elements. However, the core elements of Leadership, Employee Involvement, and Customer Focus were most frequently used in these studies in improving quality and enhancing Organisational Performance. Hence, this study will consider the use of the TQM elements of Leadership, Employee Involvement, and Customer Focus in Quality Improvement and enhancing Organisational Performance. The above review also shows that Organisational Performance can be measured through increases in productivity, improvement in processes, customer satisfaction and increases in financial benefits. This study, however, will use customer satisfaction as a measure of Organisational Performance.

1.8 RESEARCH DESIGN AND METHODOLOGY

1.8.1 Target population and sample

A population consists of all members of a group that is of interest to the researcher (Graziano and Raulin, 1997:114). The target population for this study includes all footwear manufacturing organisations in the eThekwini Municipality. In research, conclusions are drawn about the population based on a sample taken from the population (Melville and Goddard 1996:30).

This study used a purposeful sample of at least 30 footwear manufacturing organisations selected from the target population. These footwear manufacturing organisations comprised small, medium and large organisations.

1.8.2 Reliability and validity

The reliability of the collected data was assessed by Cronbach's alpha reliability test. Reliability is the extent to which a measuring instrument can produce the same measurements consistently (Flick, 1998:223).

Confirmatory factor analysis was used to test the construct validity. Validity refers to the extent to which an instrument measures what it is intended to measure (Fink, 2008:195).

1.8.3 Questionnaire and questionnaire design

A review of related literature showed that the questionnaire is the preferred method of collecting data. This is an inexpensive way to collect information from a large sample or population, allowing for proper statistical analysis of results (Rossman and Rallis, 2003).

The questionnaire pertaining to this study will determine what effect the implementation of the TQM elements of Leadership, Employee Involvement, and Customer Focus will have on Quality Improvement and on Organisational Performance. The questionnaire was designed from research undertaken by Arumugam *et al.* (2008), Bhat *et al.* (2009), Cai (2009), Chin *et al.* (2003), Demirbag *et al.* (2008), Fotopoulos *et al.* (2009), and Kumar *et al.* (2009). The construct and their dimensions used in their questionnaires were tested for reliability and validity.

The questionnaire used in this study was tested for reliability using a purposeful sample of 5 footwear manufacturing organisations in the eThekwini region.

Besides the biographical information, the questionnaire consisted of five parts relating to the TQM elements. The first part of the questionnaire related to Leadership, whereas the second part related to Employee Involvement. The third part of the questionnaire referred to Customer Focus and the fourth part of the questionnaire makes reference to Quality Improvement efforts. Finally, the last part of the questionnaire referred to Organisational Performance. The questionnaire was designed using a five-point Likert Scale.

Questionnaires were administered to quality personnel at management level in the identified footwear manufacturing organisations with the purpose of acquiring the following information:

(1) Leadership's commitment to quality through strategic planning, continuous improvement, resource allocation, stakeholder participation, and customer satisfaction.

(2) Employee Involvement in quality through empowerment, team work, skills acquisition, and suggestions.

(3) Customer Focus through needs analysis, feedback, input, and communication.

(4) Quality Improvements through increases in productivity and improvements in performance.

(5) Organisational Performance through a reduction in customer complaints, improvement in customer satisfaction, loyalty, and evaluation of performance.

1.8.4 Qualitative and quantitative research methods

Quantitative research involves an objective way of studying things. With this type of research the results are given numerical values and the researcher uses mathematical and statistical methods to help evaluate the result. Qualitative research involves the collection of data in the form of descriptions. It is especially useful in studying the way organizations, groups, and individuals interact (White, 2003:24-25).

White (2003:24) and Trochim (2006:30) are of the view that a combination of qualitative and quantitative research methods is an efficient way of collecting data. Hence, this study will use both qualitative and quantitative research methods.

1.9 ANALYSIS OF THE DATA

The Statistical Package for the Social Sciences (SPSS) was used to analyze the data. This analysis involves an interpretation of the results, and using descriptive and inferential statistical measures to make statistical inferences that will be of value to the research problem**.**

Several descriptive statistical measures, such as the means and standard deviations for each construct, were calculated and used in the analysis of the data.

Multiple regression analysis was used to analyse the data with Quality Improvement as the dependent variable and the other three variables (Leadership, Employee Involvement, and Customer Focus) as the independent variables.

Correlation analysis was used to analyse the data with Organisational Performance as the dependent variable and Quality Improvement as the independent variable.

1.10 STRUCTURE OF THE CHAPTERS

1.10.1 Chapter 1: Introduction and overview of the study

This chapter will provide a brief introduction to this study, together with the aims and objectives of the study. It will also include the reason for this investigation, the manner in which the research will be conducted, and the reason for studying this topic.

1.10.2 Chapter 2: Literature Review

The literature review will explain the various elements of TQM using a variety of sources. It will refer to previous research that has been conducted using TQM elements, the characteristics of the TQM elements, and the dimensions that were used in measuring the TQM elements.

1.10.3 Chapter 3: Research Methodology

The research methodology will explain the qualitative, quantitative and the mixed-method research technique, the various sampling methods and research techniques to be used in this study.

1.10.4 Chapter 4: Results and discussion

This chapter will focus on the analysis of the data and the presentation of the results of the qualitative data in the form of charts and diagrams. This will be followed by a discussion of the results.

1.10.5 Chapter 5: Recommendations and conclusion

Conclusions will be reported on the outcome of the study, together with suitable recommendations. This chapter will also include a diagrammatic representation of the structural relationships between the TQM elements.

1.11 CONCLUSION

This chapter introduced the research to be undertaken and a brief overview of the background to the study. This chapter also explained the aims and objectives and briefly outlined the research methodology to be used. The next chapter presents a more detailed review of literature relevant to this study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter of the study presents an extensive review of literature on research that examined the development and implementation of Total Quality Management (TQM) frameworks and the results achieved, as well as their relationship with organisational performance. In addition, a research framework is presented, together with a discussion on the elements that constitute the framework.

Research reveals that the successful implementation of TQM usually involves one of the following approaches:

- Contributions by quality gurus;
- Quality management standards such as the ISO 9000 series;
- Awards-based quality frameworks; and
- Academic-based quality frameworks

A review of studies based on these approaches is presented below.

2.2 CONTRIBUTIONS BY QUALITY GURUS

2.2.1 Armand W. Feigenbaum

Armand W. Feigenbaum introduced the concept of total quality control. He stressed the need for leadership (a commitment by top management) and employee involvement (organisational commitment) to improve the quality of products and processes (quality technology) in their organisations which allowed for full customer satisfaction (Foster, 2007:49).

Feigenbaum proposed 19 steps, as listed in *Table 2.1*, for improving quality.

Table 2.1: Figenbaum's 19 steps for improving quality

1.	Total quality control is defined as a system of improvement.
2.	Organisation-wide commitment to total quality control is more important than improvements on the production line.
3.	Control is a management tool with four steps.
4.	Quality control requires integration of uncoordinated activities.
5.	Quality increases profit.
6.	Quality is expected, not desired.
7.	Humans affect quality.
8.	Total quality control applies to all products and services.
9.	Quality is a total life-cycle consideration.
10.	Control the process.
11.	A total quality system involves the entire organisation-wide operating work structure.
12.	There are many operating and financial benefits of quality.
13.	The costs of quality are a means for measuring quality control activities.
14.	Organise for quality control.
15.	Managers are quality facilities, not quality cops.
16.	Strive for continuous commitment.
17.	Use statistical tools.
18.	Automation is not a panacea.
19.	Control quality at the source.

Source: Foster (2007:49)

The above framework clearly outlines Figenbaum's approach to total quality control with an emphasis on quality improvement through organisation-wide involvement. This involvement requires strong leadership, employee involvement, and the use of

statistical techniques to improve quality of products and processes, resulting in increased operational and financial benefits to the organisation. Thereafter, a number of widely recognised approaches to quality, as indicated below, were developed by quality gurus such as Deming, Juran, Ishikawa, and Crosby. Their contribution provided a better understanding of the philosophy and principles of TQM.

2.2.2 W. Edward Deming

W. Edward Deming proposed the following 14-point framework, as reflected in *Table 2.2*, for implementing quality improvement in organisations.

Table 2.2: Deming's 14-points for improving quality

1.	Create constancy of purpose.
2.	Lead to promote change.
3.	Build quality into the product; stop depending on inspection to catch problems.
4.	Build long-term relationships based on performance instead of awarding business on the basis of price.
5.	Continuous improve product, quality, and service.
6.	Start training.
7.	Emphasise leadership.
8.	Drive out fear.
9.	Break down barriers between departments.
10.	Stop haranguing workers.
11.	Support, help, and improve.
12.	Remove barriers to pride in work.
13.	Institute a vigorous programme of education and self-improvement.
14.	Put everybody in the company to work on the transformation.

Source: Heizer and Render (2006:198)

Deming's philosophy was that quality and productivity increased as process variability decreased. He identified continuous improvement of processes as a way of eliminating the causes of quality problems, and of meeting the expectations of customers (Schroeder, 2000:138-139).

Deming's 14-points indicated that quality improvement could be accomplished through a commitment to quality by leadership (top management), employee involvement in quality improvement, long-term supplier relationships, continuous quality improvement of products and processes, and the use of statistical techniques to improve quality.

2.2.3 Joseph M. Juran

Joseph M. Juran introduced the idea of quality planning, quality control, and quality improvement in his quality trilogy. Quality planning required organisations to identify their goals, customers, and products required. Like Deming, Juran stressed that quality control can be achieved through the use of statistical methods. He also believed that leadership (top management) was responsible for quality and that employee involvement was necessary to ensure continuous quality improvement (Evans, 2005:27-29).

2.2.4 Kaoru Ishikawa

Kaoru Ishikawa based his work on that of Deming, Juran, and Feigenbaum. The concept of quality circles was credited to Ishikawa. He claimed that employees disliked quality control because of the complex and difficult statistical methods that were used in quality control. He saw that employee involvement in quality was essential for successful implementation of TQM, and that quality circles were the way of achieving continuous quality improvement (Foster, 2007:50).

Ishikawa identified 11 points that made up his quality philosophy as shown in *Table 2.3.*

Table 2.3: Ishikawa's 11-points for improving quality

1.	Quality begins with education and ends with education.
2.	The first step in quality is to know the requirements of the customer.
3.	The ideal state of quality control is when inspection is no longer necessary.
4.	Remove the root causes, and not the symptoms.
5.	Quality control is the responsibility of all workers and all divisions.
6.	Do not confuse the means with the objectives.
7.	Put quality first and set your sights on long-term objectives.
8.	Marketing is the entrance and exit of quality.
9.	Top management must not show anger when facts are presented to subordinates.
10.	Ninety-five percent of the problems in a company can be solved by the seven tools of quality control.
11.	Data without dispersion information are false data.

Source: K. Ishikawa, Guide to Quality Control (New York, 1968)

It can be observed from the above table that Ishikawa emphasised employee commitment to quality through education and training, responsibility, and communication of information. In addition, he believed that determining customer requirements and expectations was the starting point in any quality improvement effort and that the use of quality control techniques was necessary in solving quality-related problems.

2.2.5 Phillip Crosby

Phillip Crosby advocated the zero-defects approach to quality. He believed that organisations should seek to produce products that are free of any defects. He argued that it was cheaper to make the product right the first time than to correct errors (Kruger and Rampal: 2009:122). Crosby's quality improvement consisted of 14 steps as indicated in *Table 2.4*.

Table 2.4: Crosby's 14-steps for improving quality

1.	Management commitment.
2.	Quality improvement teams.
3.	Quality measurement.
4.	Cost of quality evaluation.
5.	Quality awareness.
6.	Corrective actions.
7.	Ad hoc committee for the zero-defects programme.
8.	Supervisor training.
9.	Zero-defects day.
10.	Goal setting.
11.	Error-cause removal.
12.	Recognition.
13.	Quality councils.
14.	Do it all over again.

Source: Summers (1997:31)

Crosby's zero-defects approach provides the basis of quality improvement through leadership's commitment to quality, organisation-wide awareness of quality, employee involvement (team work, training and education, rewards and recognition), measurements in respect of quality problems and the prevention of defects throughout the organisation.

The above list, though not exhaustive of all those who contributed to the philosophy of TQM, does provide an indication of the development of TQM. It shows that these quality gurus suggested various frameworks to quality management, and whilst specific details may differ, there are some elements, such as leadership, information and analysis, employee involvement, customer focus, and quality philosophy that are common across the various frameworks, as reflected in *Table 2.5*.

Table 2.5: Core TQM elements

TQM element	Feigenbaum	Deming	Juran	Ishikawa	Crosby
Leadership	X	X	X	X	X
Information and analysis	X	X	X	X	
Strategic planning	X		X		X
Employee involvement	X	X	X	X	X
Quality assurance	X	X	X	X	
Customer focus	X	X	X	X	
Focus of the quality department	X	X	X		
Quality environment and infrastructure	X	X			
Quality philosophy	X	X	X	X	X
Teamwork			X	X	X

Source: Foster (2007:56) [Adapted]

2.3 QUALITY STANDARDS: THE ISO 9000 SERIES

2.3.1 Establishment of the ISO 9000 series

The International Organisation for Standardisation (ISO) was established in 1946 and the ISO 9000 family of standards officially released in 1987. These series were revised in 1994, followed by a major revision in 2000, and then a minor revision in 2008. According to Gitlow, Oppenheim, Oppenheim and Levine (2005:33), the purpose of the ISO 9000 series was to develop a single quality standard which would describe the way in which organisations should go about ensuring quality. These series provided the guidelines on the establishment of quality management systems which can be used to manage procedures, policies, and training (To, Lee and Yu, 2009:60).

According to Kruger and Rampal (2009:128), the ISO 9000 series has had a major impact on the quality practices of organisations trading on the international market. Its aim is to facilitate international trade and improve organisational performance. They also stated that ISO 9000 certification became compulsory for organisations trading with the European Community, and countries that met the ISO 9000 standards were viewed as meeting international quality standards.

2.3.2 Revised ISO 9000 series

The revised ISO 9000:2000 series, according to Tague (2005:20-21), incorporated current quality management practices which are based on a model consisting of the following eight TQM elements:

- Customer Focus;
- Leadership;
- People Involvement;
- Process Approach;
- Systems Approach to Management;
- Continual Improvement;
- Factual Approach to Decision Making; and
- Mutually Beneficial Supplier Relationship

The eight elements are more closely aligned with the philosophy of TQM which shows a strong focus on leadership (top management commitment), continuous improvement of products and processes, and customer satisfaction (Goetsch and Davis, 2002:5).

The ISO 9001 series is a certification assessment standard which requires organisations to show commitment to quality, customer satisfaction and continuous improvement of their quality management systems (Lee, Wong and Yeung, 2011:176). In terms of this series, organisations are assessed and certified according to the following five major assessment criteria:

- Quality Management Systems;
- Management Responsibility;
- Resource Management;
- Product Realisation; and
- Measurement, Analysis and Improvement

The number of ISO 9001 certified organisations, according to Rusjan and Alic (2010:757), had increased by almost one million at the end of 2007 due either to competition, government legislation, or financial benefits. They carried out a literature review with the purpose of identifying the benefits of implementing a quality management system based on the ISO 9000 standards. They identified and verified these benefits using the Balanced Score Card approach. The Balanced Score Card approach divides the objectives of an organisation into the following four groups:

- Assuring customer satisfaction;
- Effective process implementation;
- Employee learning and development; and
- Positive financial benefits

They concluded, based on their analysis of previous published research, that a quality management system using the ISO 9000 principles, positively affects all four groups.

2.3.3 TQM in ISO 9000 certified organisations

There were a number of studies conducted in ISO 9000 certified organisations to determine the impact of their quality management practices on organisational performance. These studies were conducted in either manufacturing organisations or service organisations or a comparative study of manufacturing and service organisations. A review of some of these studies that examined the implementation levels of TQM in ISO 9000 certified organisations, and the results achieved, is presented below.

Das, Paul and Swierczek (2008:52-72) evaluated the TQM implementation process in randomly selected ISO 9000 certified manufacturing organisations in Thailand. From a review of literature, they identified ten TQM implementation elements and one outcome element for measuring TQM implementation in Thai manufacturing organisations. The ten TQM implementation elements used in their study were:

- Leadership (top management commitment);
- Supplier Quality Management;
- Continuous Improvement;
- Product Innovation;
- Bench Marking;
- Employee Involvement;
- Reward and Recognition;
- Education and Training;
- Customer Focus; and
- Product Quality

The outcome element was Organisational Performance which was measured through quality assurance and customer satisfaction. They found that these elements were reliable and valid measures for evaluating the TQM process and identifying areas that required improvement.

To, Lee and Yu (2009:59-72) studied the implementation of ISO 9001:2000 in the public sector of Macao SAR, the People's Republic of China. They examined the application and effectiveness of ISO 9001:2000 using a measurement instrument based on the ISO 9001:2000 principles. The eight elements of TQM identified in the ISO 9001:2000 series, as noted above, were used to measure Organisational Performance through customer feedback and behaviour response in terms of positive word of mouth. The results of their study showed that the implementation

and application of the ISO 9001:2000 principles were effective in enhancing Organisational Performance in the public sector.

Su, Li, Zhang, Liu and Dang (2008:809-823) carried out a survey of the TQM practices of ISO 9001 certified manufacturing and service firms in West China. The results of their survey suggested that the TQM elements of Customer Focus, Employee Relations, Leadership, and Statistical Process Control did not have a direct positive impact on Organisational Performance which was measured through financial and market benefits. However, they did find an indirect positive relationship between Organisational Performance and quality performance (reduction in defects, and an improvement in the quality of products and processes). Furthermore, the authors established that the contribution of the TQM elements to Organisational Performance was greater in service organisations than in manufacturing organisations.

As indicated above, the purpose of ISO 9000 series is to provide guidelines for organisations to establish and maintain effective quality management systems through the development of processes. According to Das, Kumar and Kumar (2011:7), establishing and maintaining a quality management system does not guarantee that product quality will be improved or that organisational performance will be enhanced since the ISO 9000 series does not cover all areas of management. However, this shortcoming in the ISO 9000 series can be addressed through the use of quality awards. The quality award frameworks frequently used by scholars worldwide are the Deming Prize, the Malcolm Baldrige National Quality Awards and the European Foundation for Quality Management (Corredor and Goni, 2010:529).

2.4 AWARDS-BASED FRAMEWORKS

2.4.1 The Deming Prize

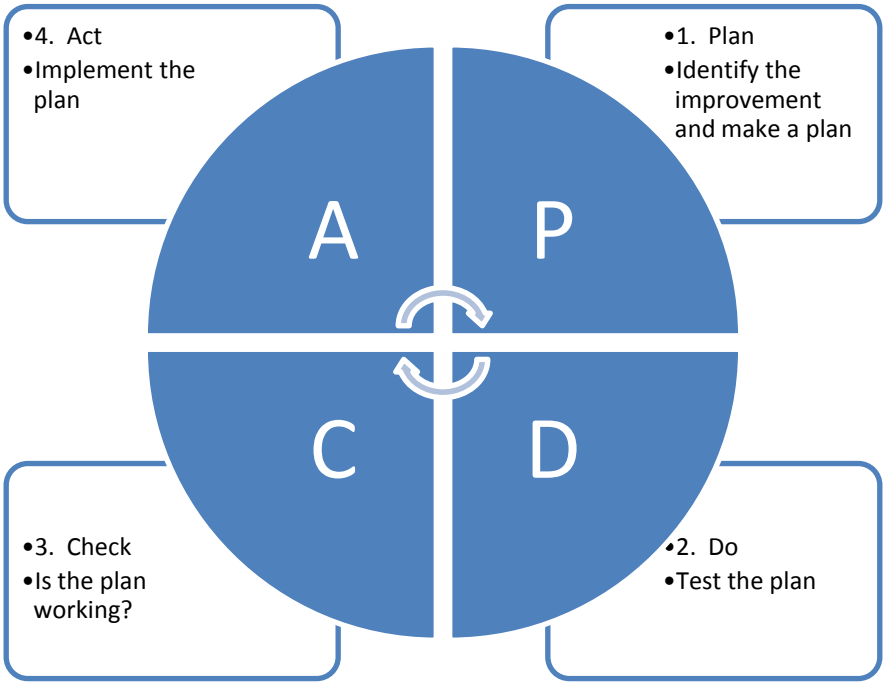
The Deming Prize was established in Japan in 1951 by the Board of Directors of the Japanese Union of Scientist and Engineers (JUSE) in appreciation of Deming's achievements in statistical quality control in Japan (Evans, 2005:74). Lee, Wong and Young, (2011:177) stated that the main purpose of the Deming Prize was to recognise improvements in Organisational Performance through the successful implementation of TQM, based on the use of statistical quality techniques. The Deming Prize is evaluated on the following basic categories:

- Management policies and their deployment;
- New product development and work process innovation;
- Maintenance and improvement;
- Management system;
- Information analysis and utilisation of information technology; and
- Human resource development

The above categories of assessment showed that Deming's focus was on leadership, market orientation, people involvement and continuous improvement. These categories were assessed, according to Breja, Banwet and Iyer (2011:5), on their effectiveness, consistency, continuity, and thoroughness. They undertook a case study to evaluate the effectiveness of the quality strategy in a Deming Application Prize (DAP)-winning organisation. They found that the implementation of TQM using the DAP framework had a positive effect on Organisational Performance.

In 1950, Deming proposed a self-auditing method, known as the Deming cycle or more commonly referred to as the PDCA cycle, for continuous quality improvement. This cycle consisted of four stages, namely, Plan, Do, Check, and Act (Alhatmi, 2010:114). The PDCA cycle can be represented as a circle, as shown in *Figure 2.1.*

Figure 2.1: The PDCA cycle



Source: Heizer and Render (2006:199) [Adapted]

Kachru (2007:273) explained that the Plan-stage required the development and implementation of a quality policy with the objective of improving the quality of products and processes, whilst the Do-stage involved putting the plan into action.

The Check-stage was to ascertain if the actions have actually worked, and finally, the Act-stage determined what corrective measures were taken.

The principles of the PDCA cycle were used in a number of studies by scholars and researchers to measure organisational performance. For example, Garratt (2007:189-196) undertook a case study to measure library performance in a small South African law firm library using the principles of ISO 9001:2000 and the principles of the PDCA cycle. He used the ISO 9001 audits to identify the deficiencies in the existing library system and identified and implemented corrective actions by applying the PDCA principles. He found that the PDCA principles made it possible to define objectives against which to measure performance, that is, satisfying the requirements of the users of the library. Venkatraman (2007:92-112) also adopted the PDCA principles in his study. He proposed a framework for the effective implementation of TQM in higher education. His framework consisted of six core TQM elements (Leadership, Educational Management, Human Resource Management, Information Management, Customer Focus and Satisfaction, and Partnership Development and Management) and a seven-step course evaluation process. His TQM framework adopted the PDCA principles for implementing continuous quality improvement in teaching in higher education programmes.

2.4.2 The Malcolm Baldrige National Quality Award (MBNQA)

The Malcolm Baldrige National Quality Award (MBNQA) was established in the USA in 1987 with the intention of promoting quality management practices and improving Organisational Performance through customer satisfaction. The MBNQA framework, according to Gryna, Chua and DeFeo (2007:49), measures Organisational Performance through the following seven TQM elements:

- Leadership (top management commitment);
- Strategic Planning;
- Customer and Market Focus;
- Information and Analysis;
- Human Resource Focus;
- Process Management; and
- Business Results

The award criteria are based on the principle that Leadership, through strategic planning, employee involvement, processes, and information and analysis, drives the organisation towards an improvement in performance and customer satisfaction (Talwar, 2011:25).

Scholars in a number of countries have used the TQM elements identified in the MBNQA framework to examine the relationship between these TQM elements and Organisational Performance. A review of some of the studies that were undertaken using the MBNQA framework is presented below.

Fening, Pesakovic and Amaria (2008:694-708) undertook a study of 116 small and medium size (SMEs) organisations in Ghana. They examined the relationship between the TQM elements, as listed in the MBNQA framework, and the five Organisational Performance indicators of profitability, customer satisfaction, sales growth, employee morale, and market share. They found a strong positive correlation between the TQM elements of Leadership, Strategic Planning, Human Resource Management, Process Management, Customer Focus, and Organisational Performance. The relationship between the remaining TQM elements (Information and Analysis, and Business Results) and Organisational Performance, though significant, were weak.

Jayamaha, Grigg and Mann (2008:477-493) assessed the validity of the TQM elements of the MBNQA framework on Organisational Performance using data collected from a sample of 91 New Zealand organisations. They found that Human Resources Focus and Process Management had a major impact on Organisational Performance. Process Management, on the other hand, was affected by Customer and Market Focus, Human Resource Focus and Measurement Analysis and Knowledge Management. Their results showed that Human Resource Focus, Customer and Market Focus were primarily affected by Measurement Analysis and Knowledge Management. Strategic Planning was affected by both Leadership and Measurement Analysis and Knowledge Management, and that Measurement Analysis and Knowledge Management was largely influenced by Leadership.

Using the MBNQA framework, Prajogo (2005:217-228) undertook a comparative analysis of the implementation of TQM elements in manufacturing and service organisations and their relationship to Organisational Performance. He collected empirical data from 194 Australian organisations, consisting of an equal number of manufacturing and service organisations.

His study showed that the TQM elements based on the MBNQA framework were valid across both types of organisations, and that there were no significant differences in their relationship with Organisational Performance.

Based on the above literature review, it is evident that the MBNQA framework enabled organisations to evaluate their quality management systems and to determine the results achieved through their application. It can also be observed from the above that organisations using the MBNQA framework were successful in enhancing their performance.

2.4.3 The European Foundation for Quality Management (EFQM)

The European Quality Award was established in 1991 and was based on the EFQM Excellence Model. Its main purpose was to enhance the competitiveness of Western European organisations in the international market through improved quality practices (Talwar, 2011:23). This Model assumes that organisation performance, such as customer satisfaction and financial benefits, is derived through five “enabler” elements and four “result” elements.

The five “enabler” elements are:

- Leadership;
- Policy and Strategy;
- People Management;
- Partnerships and Resources; and
- Processes

The four “result” elements are:

- Customer Results;
- People Results;
- Society Results; and
- Key Performance Results

The EFQM is based on the premise that the four “result” elements are achieved through the five “enabler” elements (Haffer and Kristensen, 2010:388).

The EFQM, like the MBNQA framework, was used in some studies to determine its effect on Quality Improvement and Organisational Performance. For example, Tari and Molina-Azorin (2010:687-701) undertook a literature review and analysis of the EFQM model. The purpose of their research was to identify the benefits that can be derived by integrating quality management and environment management using the principles of the EFQM model. They found that the “enablers” and “results” criteria of the EFQM model were useful in developing and implementing an integrated quality management system.

In another study, Tari (2010:19-33) assessed ten services offered by a public university in Spain using the principles of the EFQM model. The objective of this case study was to identify difficulties, benefits, success factors, and the importance of follow-up in self-assessment. The main difficulties encountered were lack of time and implementation of improvement actions. The greatest benefits were derived from identifying and implementing actions to improve quality of service.

Another benefit highlighted in this study was Employee Involvement in improving quality of service. All success factors used in the study were considered important. Follow-up was identified as the key to ensuring that the improvement plans were implemented and that the whole process was a success. The researcher concludes that the self-assessment exercise and the follow-up can improve teaching and research in higher education institutions.

It is evident from the foregoing literature review that organisations worldwide have used the awards-based quality frameworks to improve the quality of their products and processes as well as their operational performance. In addition, the successful implementation of these quality standards and awards, and the results achieved, encouraged other developed countries to create similar quality awards and frameworks setting out national and international standards for quality. Some of these quality awards, as identified by Talwar (2011:26), are listed below:

The Canadian Award for Business Excellence;
The Australian Quality Award;
The Singapore Quality Award;
Rajiv Gandhi National Quality Award (India); and
The Taiwan National Quality Award.

2.5 ACADEMIC-BASED FRAMEWORKS

Based on the TQM elements contained in the awards-based frameworks, many scholars and researchers developed their own research frameworks to determine the impact of these elements on Organisational Performance. Some researchers used those elements that were relevant to their studies whilst others undertook studies that tested specific TQM implementation elements such as Leadership, Customer Focus or Employee Involvement.

Salaheldin (2009:215-237), in a study of SMEs in Qatar, developed a conceptual framework based on three critical success factors of TQM implementation. He identified these critical factors as the strategic factor (Leadership), the tactical factor (Employee Relations), and the operational factor (Organisational Performance). Leadership was measured through Strategic Planning, Organisational Culture, and Continuous Quality Improvement. Employee Relations was measured through Team Building and Problem Solving, Employee Empowerment, Involvement, Education and Training. The operational factors were measured by Product and Process Design, Customer Orientation, and Resource Utilisation. The results of his analysis showed a positive effect of TQM implementation on internal operations (reduction in cost and waste, and improvement in product quality and productivity) and on Organisational Performance (financial benefits).

Zu (2009:129-149) proposed a structural research framework which examined the roles of infrastructure TQM elements and core TQM elements in improving Organisational Performance. To test his research framework, he used empirical data obtained from 226 manufacturing organisations in the United States of America. From a literature review, he identified seven TQM elements which were divided into four infrastructure TQM elements (Leadership, Customer Relationship, Supplier Relationship, and Workforce Management) and three core TQM elements (Quality Information, Product/Service Design, and Process Management). In his analysis of the structural research framework, he found that the infrastructure TQM elements contributed to Organisational Performance by supporting the core TQM elements and that the core TQM elements directly led to enhanced Organisational Performance.

Hence, in line with the above review of TQM and organisational performance, the following hypotheses are formulated as a basis for the present research:

H1: The TQM elements of Leadership, Employee Involvement, and Customer Focus are positively related to Quality Improvement.

H2: The TQM elements of Leadership, Employee Involvement, and Customer Focus are positively related to Organisational Performance.

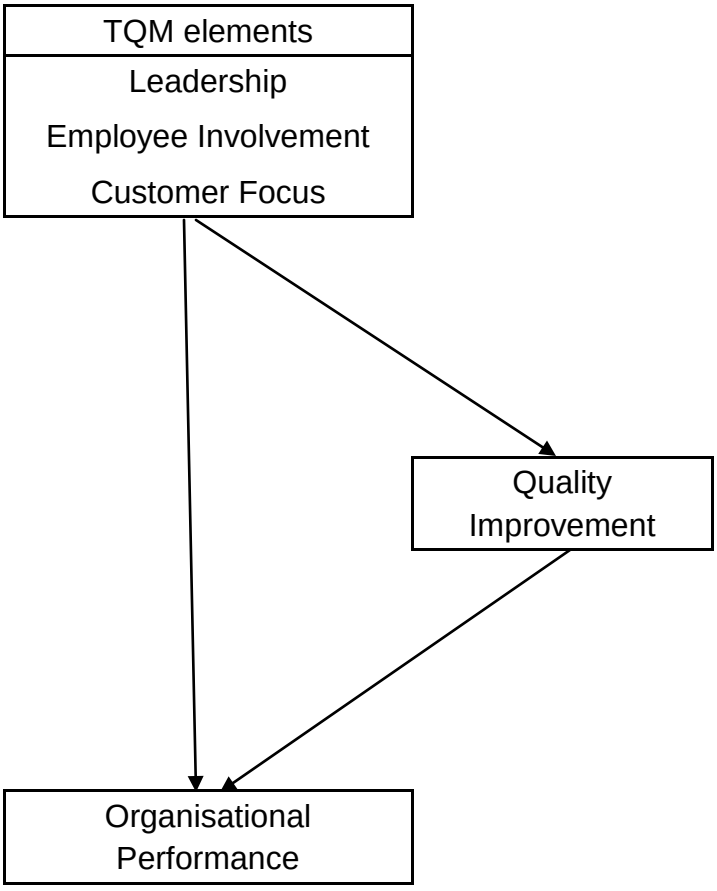
H3: Quality Improvement is positively related to Organisational Performance.

Using the TQM elements identified in the literature review, a research framework for this study was developed.

2.6 THE RESEARCH FRAMEWORK

The research framework, shown in *Figure 2.2*, sets out the TQM elements of Leadership, Employee Involvement, and Customer Focus as implementers of quality improvement in an organisation. This study aims to establish whether or not Quality Improvement enhances Organisational Performance.

Figure 2.2: Research framework



2.7 ELEMENTS OF TQM

Some studies were conducted in empirical hypotheses testing of a specific TQM element such as Leadership (top management commitment), Employee Involvement (human resource management), or Customer Focus, to determine their effect on Organisational Performance. A discussion on the evaluation of the importance of each of these elements, and their success as drivers of TQM, are set out in the sections that follow.

2.7.1 Leadership

Kachru (2007:271) stated that Leadership must establish unity of purpose and provide direction in an organisation. Additionally, Leadership had to create and maintain an environment that required the involvement of all employees to achieve the quality objectives of the organisation. Furthermore, Leadership must set norms detailing responsibility and authority in the implementation of a quality programme.

Heizer and Render (2006:194) provided a framework for Leadership which begins with a set of activities that foster quality, followed by an understanding of quality principles, and then involving employees in the activities required to implement quality. This, they felt, will enable an organisation to satisfy the needs and requirements of customers and provide a competitive advantage.

2.7.1.1 Leadership and Quality Improvement

TQM literature abounds in studies that have linked Leadership to quality improvement in organisations. For example, Lakshman (2006:41-60) is of the view that the quality improvement process begins with Leadership's commitment to quality, and it is Leadership through its quality management systems that determines the quality of products and processes. This is supported by Sila and Ebrahimpour (2002:902-970) in their meta-analysis of 347 survey-based research articles on the TQM elements used in different countries over a period of 11 years from 1989 to 2000. They found that a commitment to quality by Leadership was a major element in TQM implementation in organisations, and that a strong Leadership totally committed to quality had a direct impact on the quality commitment of employees. This is reinforced by Grutter (2010:275) who is of the belief that adopting and implementing a TQM programme required strong Leadership. In addition, Leadership is expected to make visible efforts in showing their support for quality improvements, in communicating with all employees, and in allocating resources to sustain the quality programme.

Kristal, Huang and Schroeder (2010:902) identified three crucial points in the commitment of Leadership to quality. Firstly, Leadership should have a long-term vision of quality rather than a short-term vision of quality, especially in an environment where customer needs are constantly changing. Secondly, Leadership needs to articulate and communicate this shared vision throughout the organisations. Thirdly, Leadership shows its commitment and support for quality by providing adequate resources.

Islam and Karim (2011:53) contended that the quality of incoming materials and Leadership's role in developing mutually beneficial relationships with suppliers is indicative of the commitment by organisations to improve quality. Further, this relationship required organisations to monitor suppliers periodically through some form of quality assurance.

2.7.1.2 Leadership and Organisational Performance

Sila and Ebrahimpour (2005:1123-1155), in a further study, using data obtained from United States manufacturing organisations, investigated the relationships among various TQM elements and the results achieved from implementation of these elements. Their investigation revealed that effective implementation of these TQM elements resulted in enhanced Organisational Performance, and that Leadership was one of the elements that had a direct effect on Organisational Performance.

Evans (2005:380), on the other hand, identified three clear roles of quality Leadership. Firstly, Leadership must establish a quality-oriented vision which incorporates quality policies and goals. Secondly, Leadership must show their commitment to quality by attending training workshops, practicing continuous quality improvement, and providing adequate resources for quality efforts. Thirdly, Leadership is required to lead the continuous quality improvement effort by improving Organisational Performance through customer satisfaction.

Vousas and Psychogios (2007:65) added that Leadership needed to develop a philosophy of continuous quality improvement and to provide the necessary support for continuous quality improvement. Jabnoun (2001:382) argued that the values that drive continuous quality improvement are the same as the values that enhance Organisational Performance through a commitment to customer satisfaction.

Ou, Liu, Hung. and Yen (2010:531) claimed that the starting point for manufacturing organisations to produce quality products is to acquire quality input (incoming materials) from suppliers. This, they believed, could be achieved by ensuring that suppliers meet the quality specifications and standards of manufacturing organisations. They contended that the importance of establishing a close working relationship with suppliers is that it improved the quality of inputs from suppliers, which enhanced Organisational Performance through an improvement in product quality.

Moreover, the discussion on awards-based frameworks in section 2.3 indicated that almost all of the quality awards recognise the important role of Leadership in creating quality goals and policies, and implementing a quality management system that will satisfy customer expectations and improve Organisational Performance. It is evident, from the preceding discussion on Leadership, that the implementation of TQM required Leadership to develop a plan to meet the quality objectives of the organisations, to communicate the organisation's philosophy on quality to all employees, to involve all stakeholders in the quality effort and improvement activities, and to ensure that adequate resources are available for quality improvements.

Using the dimensions identified in the foregoing literature review, the Leadership construct will be measured through the following dimensions:

- Incorporating quality goals and policies in strategic plans;
- Communicating quality goals and policies throughout the organisation;
- Allocating resources to improve quality of products and processes;
- Making employees aware of the importance of customer satisfaction;
- Motivating employees to continuously improve the quality of products and processes; and
- Encouraging supplier participation in quality issues

2.7.2 Employee Involvement

Employee Involvement in the continuous improvement of quality of an organisation is regarded as the most important ingredient to achieve quality commitment and results. This means that every employee in an organisation is involved in the quality improvement of products and processes (Edosomwan, 1992:14). Rao, Raghunathan and Solis (1999:217) regarded Employee Involvement as the key link in the successful implementation of TQM. Additionally, they considered employee training, resource allocation, employee empowerment, quality awareness, and employee recognition as important dimensions of Employee Involvement in Quality Improvement. Abdullah, Uli and Tari (2008:447) were of the view that Employee Involvement required employee empowerment through training and education. They contended that continuous quality improvement required employees to be trained in problem solving skills, quality improvement skills, and statistical techniques. Further, organisations could enhance employee relations by communicating to employees that their ideas, initiatives, and efforts will be recognised.

2.7.2.1 Employee Involvement and Quality Improvement

Yang (2006:162-173), in his study of high-tech organisations in Taiwan, developed a framework consisting of a number of dimensions of Employee Involvement which were used in measuring the implementation of TQM in these organisations. He concluded that the dimensions of education and training, employee development, and compensation had the greatest influences on TQM.

Cheung and To (2010:261) emphasised employee training and development, such as the use of statistical quality control techniques and other problem-solving techniques, as crucial for the effective implementation of TQM. They were of the opinion that organisations with a formal training and development programme in

quality helped employees to participate more effectively in quality management. Also, such training enhanced the skills of employees in dealing with unexpected work problems and their competence in decision-making. They stated that, in this way, employees were able to exercise their own discretion and were allowed to take responsibility for problem-solving and decision-making when dealing with quality matters.

Ahire and O' Shaughnessy (1998:14-15), however, believed that employee empowerment was fundamental in a TQM environment. They contended that employees should be empowered through the delegation of authority and responsibility on quality-related issues and the provision of support to assist employees in their quality efforts. In this way, empowered employees were in a better position to incorporate their skills in their daily tasks, and exercise better judgement and a sense of responsibility.

Ooi, Bakar, Arumugam, Vellapan and Loke (2007:62-77) examined the impact of employees' perceptions of TQM and its impact on employees' job satisfaction within a large Malaysian semi-conductor and test organisation. Although the four TQM elements (teamwork, organisational trust, and organisational culture, and customer focus), were positively associated with employees' job satisfaction, they found that teamwork was the dominant TQM element. They identified teamwork as the extent to which organisations allowed employees to work together. This allowed employees from different functional areas of the organisations to work together as a team, and hence, promoted TQM.

2.7.2.2 Employee Involvement and Organisational Performance

Hassan (2010:643), on the basis of his research, and citing Pfeffer (1994), concluded that employee participation and empowerment, teamwork, education and training, and reward systems are believed to improve Organisational Performance. Furthermore, his review provided evidence that Employee Involvement in ISO 9000 certified manufacturing organisations resulted in enhanced Organisational Performance through higher productivity, improved competitiveness, improved operations, and better customer relationships.

Yoo and Park (2007:910), in citing Liao and Chuang (2004) and Colbert (2004), stated that increased competitiveness has compelled organisations to provide employees with some form of training in their jobs. This training is expected to improve the existing skills of employees as well as assisting them in acquiring new skills. Furthermore, they maintained that employee training would have a positive effect on Organisational Performance.

Jimenex-Jimenez and Martinez-Costa (2009:1266-1289) conducted an empirical study of manufacturing organisations in the southeast region of Spain. They looked at employee involvement as a core element in the implementation of TQM in an organisation. The dimensions that were used in their study to measure Employee Involvement were empowerment, teamwork, staffing, training and development, performance appraisals, and compensation. The results of their study showed that there was a positive relationship between the TQM element of Employee Involvement and Organisational Performance.

Dimba (2010:128-137) developed a model consisting of five dimensions (recruitment and hiring, training and development, performance appraisal, compensation systems, and flexible work arrangements) to establish the relationship between Employee Involvement and Organisational Performance. She used data obtained from a cross-section of 50 large foreign multi-national organisations in Kenya. The results of her study showed that training and development, and the use of a compensation system were the best predictors of Organisational Performance.

The following dimensions, as identified in the preceding literature review, will be used as a measure of Employee Involvement in enhancing Organisational Performance:

- Empowering employees to make decisions on quality-related issues;
- Designing formal structures to enable employees to work in teams:
- Providing resources for employee training and development;
- Allowing employees to participate in decision-making; and
- Objectively evaluating employees' suggestions.

2.7.3 Customer Focus

Quality gurus such as Deming, Juran and Crosby, have recognised Customer Focus as the key to continuous quality improvement in organisations. Also, the Malcolm Baldrige Quality Award assigns the highest weight to Customer Focus. In their comprehensive review of TQM literature, Sila and Ebrahimpour (2002b:902-970) reported that Customer Focus had received the widest coverage.

Jablonski (1992:17-18) stated that meeting or exceeding the needs and expectations of customers is imperative for organisations to retain customers. In addition, he felt that Customer Focus is critical to total quality management since it is the customer who dictates the level of quality delivered. This means that organisations have to listen to their customers, collect information from customers, and, by analysing this information, determine the needs and expectations of customers (Edsomwan, 1991:25-26).

According to Ou, Liu, Hung. and Yen (2010:528), identifying the needs of customers is the starting point of establishing quality goals for organisations. Also, planning and implementation of quality begins with a focus on the needs of customers and ends when those needs are satisfied. This view is reinforced by Lagrosen (2001:350) who regards Customer Focus as those activities of an organisation that are intended to benefit the customer. Ahire and O' Shaughnessy (1998:13) suggested that the planning and execution of these quality activities, with an emphasis on Customer Focus, should lead to an improvement in the quality of products and processes.

2.7.3.1 Customer Focus and Quality Improvement

A review of literature on TQM showed that studies specifically emphasising the importance of Customer Focus for Quality Improvement of products and processes were limited. In an early study, Ahire, Golhar and Waller (1996:23-56), surveyed 371 manufacturing organisations in the United States to examine the effects of twelve (12) TQM elements on the product quality of organisations. The TQM element of Customer Focus was measured using four dimensions, namely, the extent to which customer feedback surveys was provided to management, the availability of customer complaints to management, the extent to which customer feedback is used to improve product quality, and overall customer focus on quality

management. They found that Customer Focus was a strong predictor of Organisational Performance through Quality Improvement.

In their study, Adebanjo and Kehoe (2001:49-56) investigated the factors that affect the development of teamwork and Customer Focus in different manufacturing sectors in the United Kingdom. The manufacturing organisations were differentiated into TQM and non-TQM practicing organisations. They used a variety of customer-related activities, such as communication, customer needs and expectations, customer retention and loyalty, customer complaints, and customer satisfaction in obtaining the relevant data. They found that both TQM and non-TQM manufacturing organisations scored high percentages for Customer Focus. Also, there was no significant difference between TQM and non-TQM manufacturing organisations in their emphasis on Customer Focus.

In a more recent study, Hoang, Igel and Laosirihongthong (2006:1092-1117) undertook the first empirical study in Vietnam examining the relationship between the implementation of TQM elements and the characteristics (size, type, ownership and innovation) of an organisation. In their comparative study of 222 manufacturing and service organisations, they found that Vietnamese organisations had deployed the TQM elements of Customer Focus and Leadership at a much higher level than the other TQM elements.

2.7.3.2 Customer Focus and Organisational Performance

Cai (2009:369-379) examined the implementation of the TQM element of Customer Focus in Chinese manufacturing organisations. He maintained that Customer Focus consisted of two elements: organisational customer orientation and customer relationship practices. He found that organisational customer orientation had an effect on customer relationship practices, which subsequently influenced Organisational Performance and customer satisfaction.

Nwokah and Maclayton (2006:65-76) assessed the impact of Customer Focus on Organisational Performance in Nigerian food and beverage organisations. Customer Focus measures included customer feedback and complaints, after-sales service, creating a superior product, and measuring customer satisfaction levels. Organisational Performance was measured through sales growth, profitability, and market share. Their findings showed a direct link between Customer Focus and sales growth. However, Customer Focus did not have a direct influence on profitability and market share. Overall, they found that Customer Focus contributed to Organisational Performance through moderating variables such as government policies, new product development, diversification, and innovation.

Samson and Terziovski (1999:393-409) used a large data base of 1 200 Australian and New Zealand manufacturing organisations to determine the relationship between TQM elements and Organisational Performance. Their research framework consisted of the TQM elements of Leadership, Employee Involvement, Customer Focus, Strategic Management, Information and Analysis, and Process Management. Organisational Performance was measured through customer satisfaction, employee satisfaction and quality improvement. Their study showed that the strongest significant predictors of Organisational Performance were Leadership, Employee Involvement and Customer Focus.

The above literature review highlights the importance of Customer Focus as an element of TQM. The following dimensions, as identified in the preceding literature review will be used as a measure of Customer Focus in enhancing Organisational Performance:

- Determining the needs and expectations of customers;
- Making customer satisfaction an organisation priority;
- Encouraging customers to provide feedback;
- Obtaining customer input on new product design; and
- Establishing a communication channel for customers

2.7.4 Quality Improvement

Foster (2007:126) contends that there is a clear relationship between quality and productivity. He believed that productivity can be increased by simplifying the production process and eliminating waste. Gitlow *et al.* (2005:26) identified several benefits from improving the production process such as a reduction in rework, an increase in productivity, and an improvement in quality of products and processes.

Mandal, Shah, Love and Li (1999:583), in their survey of Australian manufacturing organisations, found that 65% of these organisations achieved reduction in rejects through the use of statistical quality techniques. In citing Sluti (1992), they noted that cost of quality, inventory, scrap, and rework were reduced through prevention of defects rather than their detection. Radovilsky, Gotcher and Slattsveen (1996:22) performed a statistical analysis of survey data obtained from manufacturing and service organisations using the five quality improvement dimensions of error/defect reduction, quality cost reduction, productivity improvement, profitability, and reduction in customer complaints. Their findings indicated that the number of TQM elements that were used in Quality Improvement of products and processes had a significant influence on the reduction in errors/defects, and increases in productivity and profitability.

2.7.4.1 Quality Improvement and Organisational Performance

The literature review on the contribution by quality gurus in section 2.1 showed that these quality gurus espoused the contribution of Quality Improvement to Organisational Performance. Also, a number of empirical studies on TQM indicated a connection between Quality Improvement and improved Organisational Performance. For example, Poksinska, Pettersen, Elg, Eklund and Witell (2010:206-216) explored the state of quality improvement activities in Swedish service and manufacturing organisations. The results of their survey showed that the major drivers of Quality Improvement were the economical aspects of cost reduction, competitiveness, and market share. They found that aspects that positively influenced Quality Improvement were employee motivation, customer satisfaction, employee satisfaction, product and service quality, and internal operations.

Abdullah, Uli and Tari (2008:436-452) investigated the influence of TQM elements of Leadership, Customer Focus, Employee Involvement, Education and Training, and Employee Rewards and Recognition on Quality Improvement of products and processes. They also examined the relationship between Quality Improvement and Organisational Performance. The results of their investigation indicated that Organisational Performance was significantly influenced by the TQM elements of Leadership, Customer Focus, and Employee Involvement. In addition, they believed that Organisational Performance increased through Quality Improvement efforts.

Although the preceding review shows that Quality Improvement can be measured through a variety of dimensions, customer satisfaction and Quality Improvement of products and processes are the prevalent dimensions. Hence, for the purposes of this study, Quality Improvement will be measured through the following dimensions:

- Reduction in the number of defective end products;
- Elimination of obsolete products;
- Reduction in non-conformance to specifications;
- Reduction in rework/reprocessing; and
- Reduction in warranty compensations on returns

2.7.5 Organisational Performance

Depending on the topic of study, researchers and scholars have used different indicators to measure Organisational Performance. According to Sharma and Gadenne (2010:780), in citing Bricknell (1999), the successful implementation of TQM, will lead to a number of benefits such as a reduction in costs, an improvement in product quality, an improved market share, and increased customer satisfaction. They add that this view is consistent with the findings of Powell (1995) in which he suggested that certain elements of TQM such as Leadership and Employee Involvement were associated with improved Organisational Performance.

Anderson and Sohal (1999:859-877) examined the relationship between TQM elements and Organisational Performance in SMEs in Australia. Using the TQM elements contained in the Australian Quality Awards framework, they found a number of significant relationships between the TQM elements and Organisational Performance (competitiveness, market share and financial benefits, and employee satisfaction).

Das, Handfield, Calantone and Ghosh (2000:649-690) conducted a survey of manufacturing organisations in the United States to determine the relationship between TQM implementation and Organisational Performance (customer satisfaction, and marketing and financial benefits). They found that this relationship was strong in those organisations that were competing on the international market.

Uyar (2009:72-86) undertook a survey to evaluate the utilisation and effectiveness of financial and non-financial quality performance measures in Turkish manufacturing organisations. He identified the financial measures as those that are expressed in monetary terms such as the cost of quality. The non-financial measures represent information that is not expressed in monetary terms such as the rate of defects in production, timeous delivery of goods to customers, and the number of customer complaints. The two major findings of his study were that non-financial quality performance measures were used more frequently than the financial measures, and that Turkish manufacturing organisations perceived the non-financial measures to be more effective in measuring Organisational Performance than the financial measures.

Miyagawa and Yoshida (2005:536-553) undertook a survey of the implementation of TQM elements in Japanese-owned manufacturing organisations in China. Their survey showed a positive and significant relationship between the implementation of these TQM elements and Organisational Performance (reduced costs, improved employee relations, increased financial benefits and competitiveness).

Kumar, Choisne, de Grabois, and Kumar (2009:23-37), investigated the performance of Canadian organisations that implemented TQM elements. Organisational Performance was measured in terms of financial and operating performance, employee relations, and customer satisfaction. Their analysis showed that the implementation of TQM elements by these organisations, positively improved their performance.

Van der Wiele, Boselie and Hesselink (2002:184-193) analysed empirical data on the relationship between customer satisfaction and Organisational Performance in an international organisation with headquarters in the Netherlands. They proved the existence of a positive relationship between customer satisfaction and Organisational Performance.

The above review shows that the method of measuring Organisational Performance differs from one organisation to the next. Some organisations regard performance as a measure of their financial or market benefits whilst others consider performance as a measure of non-financial benefits such as customer satisfaction, productivity improvements, and employee satisfaction.

The assumption in this study is that organisational information is regarded as highly confidential, and that organisations may be reluctant to provide financial information. Hence, customer satisfaction is viewed as the primary indicator of Organisational Performance and will be measured with the following dimensions.

- A reduction in the number of customer complaints;
- Customer satisfaction with the quality of products;
- Customer retention and loyalty;
- An increase in favourable responses from customers on organisation performance; and
- Timeous delivery of products

2.8 CONCLUSION

The foregoing literature review has indicated that the TQM elements of Leadership, Employee Involvement, and Customer Focus have had a significant impact on Organisational Performance. Also, the literature review shows that the most widely used TQM elements are Leadership, Employee Involvement, and Customer Focus. Accordingly, these three TQM elements will be used in this research since they occupy top priority in the implementation process of TQM.

The next chapter will discuss the methodology used in this research and provides an overview of the sample and target population. In addition, the data collection method, measures of reliability and validity, and the statistical techniques used in this study will be explained in detail.

CHAPTER 3

RESEARCH METHODOLOGY AND DESIGN

3.1 INTRODUCTION

Human beings have a natural tendency to obtain more knowledge about specific objects of interest through research (Mouton, 2001:101). Welman and Kruger (2005:2) consider research as a process which involves the use of objective methods and procedures to obtain scientific knowledge and, which excludes any personal feelings of the researcher. Malina, Norreklit and Selto (2011:66-67) add that research is more a learning process than a theory testing exercise. They believe that published research should reflect the learning that occurred, as well as the reason and the manner in which researchers adapt their investigative techniques.

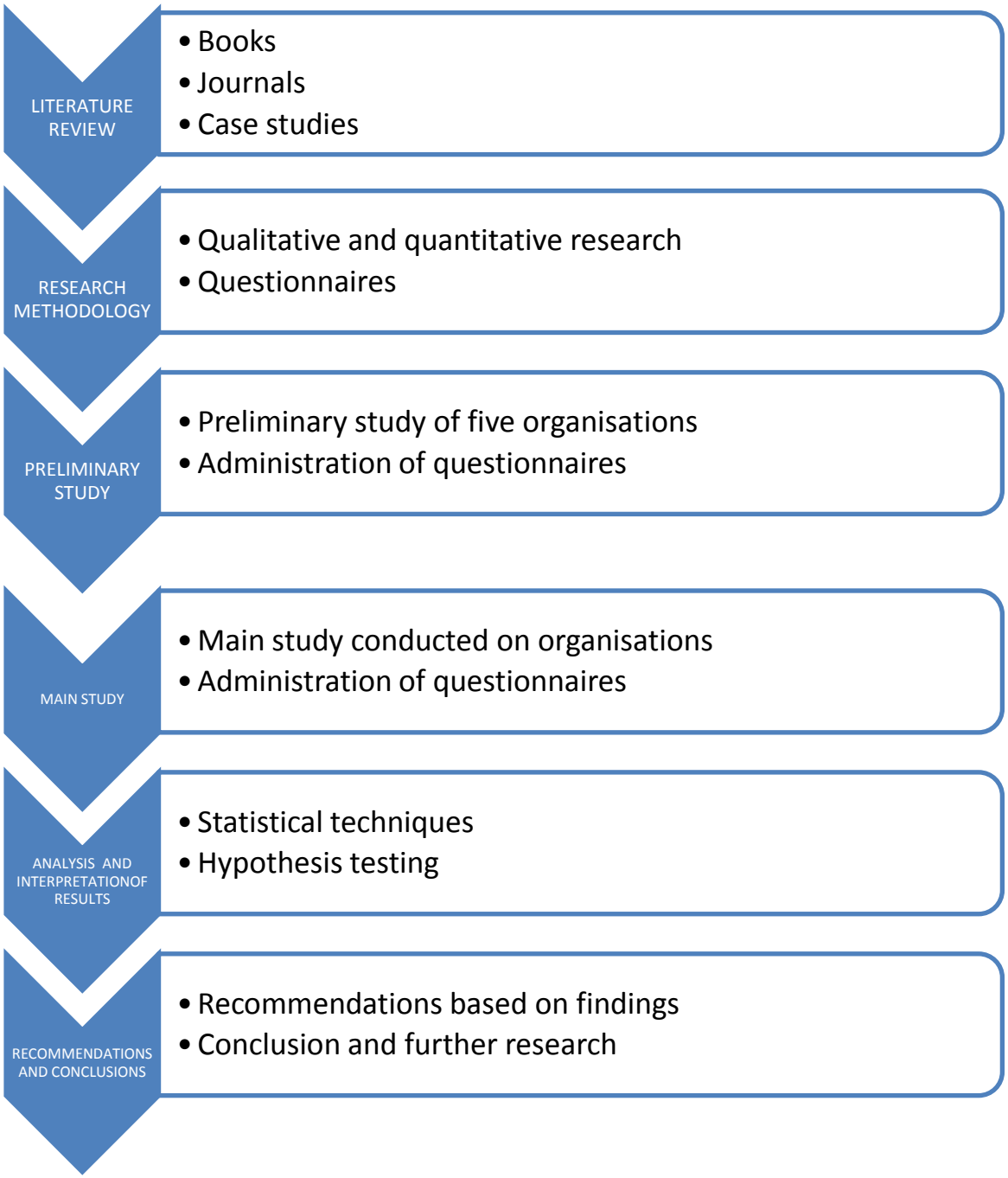
This chapter presents, together with a flow diagram, the research methodology and research design used in this study. A discussion of the qualitative, quantitative and mixed research approaches, supported by research studies that used these approaches, is included in this chapter. Furthermore, the various methods of collecting data, details on the design of a questionnaire, the target population and sampling techniques are also included in this chapter. Finally, this chapter presents the various statistical techniques that can be used to conduct research and highlights those statistical techniques that will be used in this study.

3.2 RESEARCH DESIGN

Burgess (2001:2) regards research design as a plan which provides the framework for collecting information from the participants, outlining the various steps involved in the study, and providing the required guidelines for collecting information from participants. This information is subsequently analysed with the objective of obtaining results and reaching conclusions about the problem being researched. Blumberg, Cooper and Schindler (2008:195) concur that research design can be considered as a plan for collecting, measuring, and analysing information. Walliman (2006:273) also regards research design as a plan which indicates the manner in which the research should proceed. Murray (2002:31) is of the opinion that the research design is a structured investigation to obtain information in order to answer research questions. In addition, he states that the research design indicates the methods that will be used in collecting the information. This is reinforced by Trochim (2006:32), who explains that the research design is used in structuring the research, indicating the way in which the main areas of the research problem work together in addressing the primary research investigation.

An outline of the research process to be followed in this study is presented in the *Figure 3.1*.

Figure 3.1: The Research Design



It can be observed from the *Figure 3.1* that the first step begins with Chapter 1 in which the research problem was clearly defined. This chapter also sets out the aims and objectives of the study which were supported by previous research and case studies. An indication of the various statistical techniques that will be used in this study was also presented in this Chapter 1.

The second step in the flow diagram refers to a review of literature which was discussed in Chapter 2. The hypotheses that will be tested in this study were identified from the literature review.

The third step indicated in the flow diagram corresponds to Research Methodology and Design, which is the subject of discussion in this chapter.

3.3 RESEARCH METHODOLOGY

White (2003:20) defines research methodology as the method that a researcher uses in investigating a research problem. Burgess (2001:2) adds that the methodology used in research indicates the way in which researchers identify the participants of a research study, and the manner in which information will be collected from the participants. Leedy and Ormrod (2001:121) regard research methodology as an operational framework within which information is presented so that its meaning is more clearly defined.

The two main approaches to conducting research, according to Sekaran (2006:5), are the qualitative and quantitative research approaches. While empirical studies have traditionally been based on these two approaches, many researchers now consider the mixed-methods research approach (quantitative and qualitative) a viable option (Murphy and Maguire, 2011:73).

These three approaches are discussed in the sub-sections that follow.

3.3.1 The Quantitative Research Approach

Creswell (2003:14) states that quantitative research uses numerical values to test the theory of an identified problem. This enables the researcher to measure or quantify the variables being investigated. The results of the investigation are evaluated using mathematical and statistical techniques (quantitative techniques).

A number of scholars have used the quantitative approach in their research studies. For example, Cameron and Molina-Azorin (2011:256) synthesized their findings from a scan of six business and management journals in seven different areas of business and management. They found that the quantitative approach dominated all seven areas (76% of empirical articles). It is evident from their findings that the quantitative approach is the most common approach. Plowman and Smith (2011:64), in exploring the role that gender plays in the choice of research methods, found that more women than men used the quantitative research approach in their published research papers. Other scholars that used the quantitative research approach were Tiku and Pecht (2010:938) who evaluated the reliability capability of the final products of electronic manufacturers in the USA and Marin and Ruiz-Olalla (2011:649) who investigated the effects of ISO certification in ISO certified organisations and non-certified organisations in the Spanish furniture industry.

3.3.2 The Qualitative Research Approach

Qualitative research entails the collection of data in the form of descriptions and the analysis of such data non-numerically (Blaxter, Hughes and Tight, 2006:64). This approach is generally used to study the interaction between/amongst organisations, groups, and individuals from a multiple perceptive with the objective of obtaining an overall picture of the phenomenon of interest (Mason, 2002:30).

Cameron and Molina-Azorin (2011:256), in their study of business and management journals, found that the qualitative approach constituted 10% of empirical articles. Zayer and Neier (2011:83), in examining the brand relationship of young, heterosexual male consumers of fashion and grooming products, employed three qualitative techniques, namely, collage construction, in-depth interviews, and shopping trip observations. Similarly, Steger, Lang and Groeger (2011:7), in exploring the process of institutionalisation of human resource management practices in Russian subsidiaries of German multinational organisations, also used three qualitative techniques, namely, interviews, participative observations, and an analysis of documents.

3.3.3 The Mixed-Method Research Approach

Tashakkori and Creswell (2007:4), define the mixed-methods approach as one which involves the collection and analysis of data, integrating the results, and drawing inferences using both qualitative and quantitative approaches in a single study. Holland and Campbell (2005:21) are of the opinion that the qualitative and quantitative research approaches are more powerful when combined. This is supported by Trochim (2006:30) who believes that collection of data becomes more efficient when using both qualitative and quantitative research approaches (the mixed-methods approach). Mackey and Gass (2005:21) found that the best ways of combining the qualitative and quantitative research approaches were through:

- An integration of the two approaches to obtain better measurements;
- Sequencing information for a better analysis of that information; and
- Merging the findings of the study to obtain better results.

In their review of literature on the mixed-methods approach, Ihantola and Kihn (2011:39-40), found that the reasons for using the mixed approach were to improve the validity of the proposed theory to be tested, and to obtain an unbiased and a better overall picture of the phenomenon that was being studied. They also found that the mixed methods approach was useful in

specifying research questions, enabling the researcher to be familiar with the subject matter of the study, and ensuring that respondents had the same understanding of the concepts and measures used in the study.

Scholars are increasingly using the mixed-methods research approach to address research questions. For example, Mann, Adebanjo and Tickle (2011:604) examined the effectiveness of business excellence in Asian organisations. The quantitative data was collected from organisations across five Asian countries. Their qualitative data was obtained from discussion groups across these countries and interviews with senior executives of these organisations. Murphy and Maguire (2011:72), in evaluating the benefits and costs of conducting clinical trials in a New Zealand public hospital, found that collecting quantitative and qualitative data was time consuming, and hence, had to restrict the quantity of data collected for the study. Furthermore, they found that their study required researchers with different skills.

The above review shows that a large percentage of researchers have used the quantitative approach, and a much smaller percentage used the qualitative approach. It also shows that interest in the mixed-methods approach (14% of empirical studies as identified by Cameron and Molina-Azorin, 2011:256), is much higher than the qualitative approach.

The questionnaire designed for this study consists of both qualitative and quantitative type of questions. Hence, the responses to the questions are expected to be both qualitative and quantitative in nature. However, the quantitative approach will be used in the statistical analysis and interpretation of the data. The data collected for this study is derived from two main sources, namely, primary data and secondary data.

3.4 PRIMARY AND SECONDARY SOURCES OF DATA

3.4.1 Primary data

Primary data is data that is collected for the first time and published by the person or organisation responsible for its collection (Croucher 2003:S11). The advantage of using primary data is that the researcher can define the variables to be used in the research and the techniques that will be used to measure these variables so that a valid result is obtained (Sanders, Murph and Eng, 1980:13). Hence, primary data can be considered as data that a researcher collects in order to statistically analyse the data with the objective of finding a solution to the research problem. Primary data for this study will be obtained through a questionnaire administered to a sample of footwear manufacturing organisations in the eThekwini Region of Kwazulu-Natal.

3.4.2 Secondary data

Secondary data, according to Croucher (2003:S11), is data that has already been collected and published by the person or organisation not responsible for its collection. He adds that, in using secondary data, the researcher has little or no control over the data collection method or the limitations that exist in their use. However, using secondary data can save much time and cost.

The main sources of secondary data for this study were textbooks, and research articles and case studies in academic journals. These secondary sources provided the background to the literature review in Chapter 2. They highlighted the implementation of TQM elements on Quality Improvement and Organisational Performance.

In many situations the data required by a researcher are not available from secondary sources and the researcher has no alternative but to collect the data for the first time. There are a variety of methods available to the researcher to collect the desired data for research purposes. Some of the most common methods of collecting data are discussed in the next section.

3.5 METHODS OF COLLECTING DATA

3.5.1 Personal Interviews

In conducting personal interviews, according to Sanders, Murph and Eng (1980:13), the interviewer generally asks the interviewee questions that appear on a prepared questionnaire and then records the responses.

In addition, this method has the advantage in that it allows the interviewer to clarify any terminology that the interviewee may not understand. Also, personal interviews result in a high percentage of usable questionnaires. However, this is an expensive method of collecting data and may not cover a large geographical area.

The personal interview method of data collection was used by a number of scholars in their research studies. Qui and Tannock (2010:1067) found that geographical location and access to manufacturing organisations restricted the selection of the case study organisations. Also, time and resource constraints meant that the number of interviews with managers had to be restricted to a small number. Arif and Ilyas (2011:388) and Capelli, Gugliemetti, Mattia, Merli and Renzi (2010:267-284) also used the personal interview method of data collection in their studies.

For the purposes of this study, the self-administered questionnaire survey method will be used to collect data. The personal interview method will be used if requested by the respondents or if respondents fail to respond.

3.5.2 Telephonic interviews

This is similar to personal interviews except that the interviews are conducted over the telephone (Sanders, Murph and Eng, 1980:13). They add that this is usually a less expensive method than the personal interviews. However, the results of the research may be biased since some households do not have telephones or have unlisted numbers.

Papadimitriou and Westerheijden (2010:234), in their study of the extent of use of ISO standards in Greek universities, used the telephonic interview method to collect data. The response rate in respect of their study was high at 69%. Leonard (2010:103) utilised the personal interview and the telephone interview data collection methods in studying the implementation of quality management practices in home building organisations across the USA.

The telephone interview method of data collection will be used in this study if requested by respondents. However, respondents will be contacted telephonically to ascertain their willingness to participate in this study. Further, a follow-up on returns will be undertaken telephonically to clarify any non-responses and/or omissions.

3.5.3 Mail questionnaires

Mailing questionnaires to respondents, according to Sanders, Murph and Eng (1980:13), is another common method of collecting data. They state that the questionnaire must be designed to receive quick responses, preferably through check marks or a few words.

Furthermore, although this method is the least expensive of the data collection methods, its main disadvantage is that the percentage of usable returns is usually lower than the other methods. However, it does cover a wider geographical location.

Fotopoulos and Psomas (2010:543), in their research project on the structural relationships between TQM factors and organisational performance in Greek manufacturing organisations, used the mail questionnaire approach to collect data. They received a low response rate of 22%. Das, Kumar and Kumar (2011:202) researched the role of leadership competencies for implementing TQM in Thai manufacturing organisations. Questionnaires were mailed to these manufacturing organisations. The number of usable returns represented a low response rate of 26.5%.

The questionnaire for this study will, in the first instance be personally delivered to the respondents, or if requested, e-mailed to respondents.

In summary, for the purposes of this study, the self-administered questionnaire survey method will be used to collect data. The purpose of administering a questionnaire relevant to this study is to ascertain whether or not the implementation of the TQM elements of Leadership, Customer Focus, and Employee Involvement improves quality and enhances the performance of footwear manufacturing organisations through customer satisfaction.

The prepared questionnaires will then be personally delivered or e-mailed to the respondents. A follow-up on returns will be undertaken to clarify any non-responses and/or omissions thereby ensuring a high percentage of usable returns. The follow-up on returns is expected to be low since the questionnaire was designed from extensive review of literature and input from academics and professionals.

3.6 DESIGN OF THE QUESTIONNAIRE

Fox and Bayat (2007:88) define a questionnaire as a written list of questions, the answers to which are recorded by respondents. Rossman and Rallis (2003:59) state that an important part of good research design is to ensure that the structure of the questionnaire addresses the exact object of research.

Sekaran (2006:237) advises researchers to concentrate on three focus areas when designing a questionnaire, namely, the wording of the questions, the manner in which responses are to be categorised and coded, and the general appearance of the questionnaire. White (2003:50) is of the view that questionnaires are designed to collect data in a systematic and ordered manner that enables responses to be quantified, categorised, and analysed statistically.

3.6.1 Open-ended and close-ended questions

According to Sekaran (2006:239), the two common approaches to obtaining responses are through the use of open-ended questions and close-ended questions. Additionally, open-ended questions are used in eliciting an opinion from a respondent whereas close-ended questions require respondents to make a choice from a number of alternatives supplied by the researcher. Also, close-ended questions are standardised, making it easier to interpret and to analyse statistically.

This study will use a questionnaire consisting of close-ended questions since these questions are easy to quantity and lend itself to statistical analysis. Also, it increases the rate of return because respondents are willing to participate in this study.

3.6.2 Characteristics of a questionnaire

Thirkettle (1976:7) identified the following characteristics in the design of a good questionnaire.

- Questions must be capable of only one interpretation.
- Avoid technical terms unless the questionnaire is addressed to specialists.
- Questions should have a precise answer, preferably in the form of yes/no, a number, measurement or quantity.
- Questions must not contain words of vague meaning.
- Questions should not require calculations to be made.
- Questions should not require the respondent to decide upon classification.
- Biased or leading questions should be avoided.
- The questionnaire should not be too long.
- The questionnaire should cover the exact object of inquiry.

The above characteristics were considered when drafting the questionnaire for this study. The draft questionnaire was based on a review of literature as discussed in Chapter 2. Also, the questionnaire was kept as short as possible to enable persons in managerial positions to complete the questionnaire in the limited time available to them.

3.6.3 Measurement scales

According to Tredoux and Durrheim (2002:11), in any statistical analysis of data, variables are measured on different scales. They identified the following four scales of measurement:

- Nominal scales, which are used in categorical data, with numbers used as labels to distinguish one category from another.
- Ordinal scales, which are also used in categorical data, except that the numbers are ranked or ordered in terms of an attribute.
- Interval scales, which are regarded as true quantitative measures. These scales easily determine differences between two numbers on the scale, thus making the difference between two scores an accurate reflection of the difference in the amount of an attribute.
- The ratio scale, which is similar to the interval scale with the exception that it has a true zero value. This enables mathematical operations to be performed on them.

The questionnaire designed for this study utilises a five-point Likert scale. The data produced by this scale are interval data (Blumberg, Cooper and Schindler, 2005:466). The Likert scale is a rating scale which has numbers associated with sub-statements (Kelley, 1999:95). Hence, a questionnaire which uses the Likert scale will contain a number of statements with which respondents are required to agree, remain neutral, or disagree. Oppenheim (2003:195) contends that the reliability of Likert scale is preferable to other measuring scales since it allows for a wide range of answers from respondents. *Table 3.1* indicates the response section of a questionnaire which uses the Likert scale.

Table 3.1: The Likert scale

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

3.7 STATISTICAL ANALYSIS OF DATA

Before discussing the specific statistical measures and techniques that will be applied in this study, it is necessary to explain some of the concepts and terms used in the statistical analysis of data. These concepts and terms will also assist in identifying the population and sample for this study. This will be followed by a discussion on the various statistical techniques to be used in the analysis and interpretation of data.

3.7.1 Independent and dependent variables

An independent variable (predictor variable) is a variable that is manipulated by the researcher to determine the effect it has on another variable (Rose and Sullivan, 1993:13). Also, the variable that is influenced by the independent variable is known as the dependent variable (criterion or response variable).

In testing H_1, the independent variables are the TQM elements of Leadership, Employee Involvement, and Customer Focus with the dependent variable being Quality Improvement. The independent variables to test H_2 will also be the TQM elements of Leadership, Employee Involvement, and Customer Focus with Organisational Performance being the dependent variable. In testing H_3, Quality Improvement is the independent variable and Organisational Performance the dependent variable.

3.7.2 Population and sample

Mann (2001:6) defines a population as an entire collection of objects or individuals to be used in a study. He adds that the collection of data from a large population is time-consuming and costly and that a sample should be selected from the population to collect the data. He defines a sample as a proportion of the population taken for study purposes. The results obtained from the sample are then generalised to the population and is known as statistical inference (McClave and Sincich, 2003:5). Numerous sampling techniques are available to a researcher in obtaining a sample from a population. A discussion of some these sampling techniques follows in the next section.

3.7.3 Sampling techniques

The choice of a sampling technique depends on the requirements and objectives of the research and the availability of funds (Blumberg, Cooper and Schindler, 2005:233). In addition, a sample of respondents to be included in a study can be selected by means of probability sampling or non-probability sampling.

3.7.3.1 Probability sampling

In probability sampling, according to Mendenhall, Reinmuth and Beaver (1989:306), each respondent in the population has a non-zero chance of being included in the sample. They add that probability sampling, in a statistical sense, provide estimates of precision. Further, they state that selecting a simple random sample, in which each respondent in the population has an equal chance of being selected, is the simplest form of probability sampling. They identified systematic sampling, stratified sampling, cluster sampling, and area sampling as more complex probability sampling techniques.

3.7.3.2 Non-probability sampling

According to Blumberg, Cooper and Schindler (2005:251), non-probability sampling does not allow respondents a known non-zero chance of being included in the sample. They state that it is non-random and subjective in nature but does offer practical advantages in that it is less costly and less time consuming or that it may be the only alternative available to the researcher.

Also, non-probability sampling is useful in exploratory research where the researcher wishes to contact only certain respondents.

Maree (2007:177) identified the four main types of non-probability sampling techniques as convenience sampling, quota sampling, snowball sampling and purposive sampling. In these sampling techniques, the researcher has freedom of choice in the selection of the sample.

For the purposes of this study, the sample survey organisations will be drawn through simple random sampling from the data base of the South African Bureau of Standards (SABS). Hence, the list of footwear manufacturing organisations within the eThekwini region contained in the data base will represent the sampling frame for the present study. According to Parast, Adams, and Jones (2011:434), focussing on a single industry will provide a better understanding of the processes and practices which facilitates comparison among organisations. In addition, the elements that determine Organisational Performance can be precisely identified. Accordingly, this approach is considered the most appropriate for this study.

A total of at least 30 structured questionnaires with close-ended questions will be mailed to the selected organisations. Initially, a pre-test will be carried out with 5 organisations to help improve the structure and content of the questionnaire. Subsequently, the improved questionnaire will be directed to the quality personnel in the organisations since they are directly involved in the quality process and have first-hand knowledge on the implementation of quality improvement activities in their organisations.

3.7.4 Assumptions of inferential statistics

According to Mady (2009:220), the selection of appropriate statistical techniques is very crucial, especially in studies where the sample size is small. Additionally, the application of inferential statistics depends on the assumptions of normality and homogeneity of variances. Further, in the analysis of variance, the assumption when using student's *t-test* and the *F-test* is that the samples have been drawn from a normally distributed population with equal variances. Since descriptive and inferential statistics will be used in the analysis and interpretation of data, these assumptions will be adopted in this study.

3.7.5 Descriptive statistics

Descriptive statistics, according to Mann (2001:3), describes data through tabular and graphical presentation, as well as descriptive measures such as the mean and standard deviation. In this study, descriptive analysis will be used to investigate the overall level of perception with respect the TQM elements, Quality Improvement and Organisational Performance. For this purpose, the mean for each of the dimensions listed under a construct will be calculated by summing up the total scores for each dimension and then dividing it by the total number of responses. Similarly, the overall mean score for the TQM elements, Quality Improvement, and Organisational Performance will be measured by calculating the overall composite mean scores for each construct. These mean scores will be divided into the following four different categories, as identified by Abdullah, Uli and Tari (2008:443).

Mean score	Category
1.0 - 3.3	Low
3.4 - 5.5	Moderate
5.6 - 7.8	Good
7.9 - 10.0	Excellent

Ranking the mean scores will indicate the impact each of the dimensions have on the construct. Also, it becomes necessary to calculate the variances and standard deviations since these measures will be used extensively in the inferential statistical analysis of the data. Both these measures evaluate variability, i.e., the extent to which the individual scores are dispersed around the mean. A high value indicates greater variability in the data set (Levine, Ramsey and Smidt, 2001:113).

In addition, assessing the reliability and validity of the measuring instrument is necessary to determine whether the TQM elements truly measure what they are intended to measure. The next section discusses the various measures used in assessing the reliability and validity of the measurement model.

3.7.6 Factor analysis

Factor analysis will be conducted on each of the dimensions of the TQM constructs of Leadership, Employee Involvement, and Customer Focus, as well as the Quality Improvement construct and the Organisational Performance construct. The purpose of this analysis is to ensure that the dimensions used in measuring each of the constructs are reliable indicators of those constructs. The outputs from factor analysis, according to Tiku and Pecht (2010:943-944), are the factor loadings for each measurement dimension and the factor loadings are the correlation coefficients between the measurement dimensions and the construct. Also, if all the dimensions of a construct load on a single factor, they measure the same construct. This means that the individual dimensions of a construct are combined and treated as a single entity. Generally, factor loadings of 0.50 or more are considered to be reliable indicators of the constructs.

3.7.7 Reliability

Treiman (2009:243) defines reliability as the consistency in measurement. This means that similar results should be produced with different measures of the same concept or with the same measures over different time periods. (Tredoux and Durrheim, 2002:212-213) identified four different ways to measure the reliability of a dimension, namely, test-retest reliability, alternate-forms reliability, split-half reliability, and internal consistency. In this study, internal consistency will be used as a measure of reliability.

A measure is considered internally consistent if it gives the same results when the measurement is repeated (Flick, 1998:223). Maree (2007:216) states that Cronbach's alpha is the coefficient that is used to obtain a measure of internal consistency and is based on the average correlation among dimensions within a construct. He is of the opinion that an alpha value of 0.80 is acceptable since it shows that the dimensions produce reasonably reliable results. However, a value below 0.60 is regarded as unacceptable.

Since it is one of the most widely used coefficients for measuring internal consistency (Treiman: 2009:245), Cronbach's alpha will be used in this study to measure construct reliability.

3.7.8 Validity

The validity of a measuring instrument is the extent to which the instrument measures what it is intended to measure (Fink, 2008:195). Validity can be grouped under three main categories, namely, content validity, criterion validity, and construct validity.

3.7.8.1 Content validity

Samson and Terziovski (1999:404) are of the view that a measuring instrument has content validity if the measurement dimensions of each construct cover all aspects of the construct being measured. They contend that content validity cannot be measured quantitatively and that it is established through a review of literature and detailed evaluations by scholars and quality practitioners. In terms of content validity, the measuring instrument for this study will meet the requirements, since:

- It has been developed based on extensive review of literature;
- It has been reviewed by academics in the quality field; and
- It will be tested on a sample of practicing quality managers.

3.7.8.2 Criterion-related validity

Tredoux and Durrheim, (2002:217) state that criterion-related validity is the extent to which the measuring instrument is related to the criterion outcome, either in the present time (concurrent validity) or in the future (predictive validity). The criterion-related validity of the measuring instrument will be determined by examining the coefficient of multiple correlation (*R*) for the three elements of TQM (independent variables) and the dependent variables (Quality Improvement and Organisational Performance).

3.7.8.3 Construct validity

A measuring instrument has construct validity if it measures the construct it was designed to measure (Samson and Terziovski, 1999:404). The validity of each construct will be evaluated through Principal Components Factor Analysis. Factor analysis validates a construct by demonstrating that its individual dimensions load on the same common factor. The measurement dimensions for each construct will be factor analysed.

The foregoing examined the reliability and validity of the measuring instrument. The following sections will employ inferential statistical techniques to determine the relationships between the TQM constructs.

3.7.9 Hypothesis testing

Multiple regression analysis will be employed to test the hypotheses. It is a useful technique that can be used to analyse the relationship between a single dependent variable and several independent variables (Levine, Ramsay and Smidt, 2001:616). The statistical analysis of data, using multiple regression analysis, will proceed as discussed below.

3.7.9.1 Testing the validity of the Multiple Regression Model

The first step in this analysis will employ the global test to determine the ability of the multiple independent variables in explaining the behaviour of a single dependent variable. This test uses the *F-distribution* in testing a hypothesis. The global *F-test*, according to McClave and Sincich (2003:598), indicates the usefulness of a multiple regression model in predicting a dependent variable. More specifically, this study will test whether the independent variables of Leadership, Employee Involvement, and Customer Focus are capable of effectively estimating, firstly, the dependent variable of Quality Improvement and secondly, the dependent variable of Organisational Performance.

The second step of this analysis involves the use of the *t-test* in determining the ability of each of the independent variables in explaining the behaviour of the dependent variable. The t-distribution assumes that sampling is from a normally distributed population, but it is widely used in situations where the sample is not normally distributed (Daniel and Terrell, 1992:260).

The coefficient of multiple determination (R^2) will be used in the third step of this analysis to estimate the percentage of variation in the dependent variable that can be explained by the set of independent variables. McClave and Sincich (2003:598), regard this coefficient of multiple determination as a

statistical quantity that shows how well the multiple regression model fits the data. They state that a value close to zero indicates a weak fit whereas a value close to one implies a good fit.

Finally, the error in the estimate of the dependent variable from multiple independent variables will be measured by the multiple standard error of estimate. This is a measure of variability in predicting the dependent variable from a number of independent variables (Lind, Marchal and Mason, 2002:509). A small value indicates low variability whereas a large value shows high variability.

3.7.9.2 Test of Hypothesis H_1

To determine the relationship between the TQM constructs of Leadership, Employee Involvement, and Customer Focus (the independent variables) and Quality Improvement (the dependent variable), a three-predictor multiple linear regression model is proposed. The three-predictor variables are Leadership (X_1), Employee Involvement (X_2), and Customer Focus (X_3). The equation of the proposed multiple linear regression model is as follows:

$$Y(QI) = b_0 + b_1(X_1) + b_2(X_2) + b_3(X_3) + e$$

where:

$Y(QI)$ = the dependent variable Quality Improvement

b_0 = intercept of $Y(QI)$

b_1 = change in the mean of $Y(QI)$ per unit change in X_1 (Leadership) while X_2 (Employee Involvement) and X_3 (Customer Focus) are held constant

b_2 = change in the mean of $Y(QI)$ per unit change in X_2 while X_1 and X_3 are held constant

b_3 = change in the mean of *Y(QI)* per unit change in X_3 while X_1 and X_2 are held constant

e = Random error

Source: Levine, Ramsay and Smidt (2001:617) [Adapted]

3.7.9.3 Test of Hypothesis H_2

To determine the relationship between the TQM constructs of Leadership, Employee Involvement, and Customer Focus (the independent variables) and Organisational Performance (the dependent variable), a three-predictor multiple linear regression model is also proposed. The equation of the proposed multiple linear regression model is as follows:

$$Y(OP) = b_0 + b_1(X_1) + b_2(X_2) + b_3(X_3) + e$$

where *Y (OP)* = the dependent variable Organisational Performance

b_0 = intercept of *Y(OP)*

b_1 = change in the mean of *Y(OP)* per unit change in X_1 (Leadership) while X_2 (Employee Involvement) and X_3 (Customer Focus) are held constant

b_2 = change in the mean of *Y(OP)* per unit change in X_2 while X_1 and X_3 are held constant

b_3 = change in the mean of *Y(OP)* per unit change in X_3 while X_1 and X_2 are held constant

e = Random error

Source: Levine, Ramsay and Smidt (2001:617) [Adapted]

3.7.9.4 Test of Hypothesis H_3

The relationship between Quality Improvement (the independent variable) and the Organisational Performance (the dependent variable) will be examined by using Pearson's product-moment correlation coefficient (*r*). Pearson's correlation coefficient, according to Lind, Marchal and Mason (2002:460), is used in describing the strength of the relationship between two sets of variables. These variables can be related in a positive or in a negative linear sense. The coefficient ranges from -1 to +1, with values close to +1 indicating strong positive correlation whereas values closer to -1 indicating strong negative correlation. Values closer to zero are regarded as weak negative or positive correlation, depending on the sign (Tredoux and Durrheim, 2002:184).

3.7.9.5 Statistical techniques used in previous studies

The use of these statistical measures and techniques for the present study is supported by previous studies. Grandzol and Gershon (1998:80-105), in creating a survey instrument for standardising TQM modelling research, used Cronbach's alpha to test the reliability of the construct indicators. Content validity was established through a review of the survey instrument by academics, senior Baldrige examiners and quality practitioners. Bivariate correlation was used in measuring criterion validity whereas construct validity was assessed by confirmatory factor analysis with a minimum threshold of 0.30. Several measures (such as the chi-square statistic, the goodness-of-fit index, the adjusted goodness-of-fit index, the root mean square residual, the Tucker-Lewis measure and the normed fit index) were used to evaluate the overall acceptability of the measurement model.

Samson and Terziovski (1999:393-409), in examining the relationship between TQM elements and organisational performance in a large number of Australian and New Zealand manufacturing organisations, used a number of statistical techniques in analysing their data. The dimensions of the TQM constructs were subject to factor analysis to ensure that they were reliable

indicators of the TQM constructs. The reliability of the TQM constructs was estimated using Cronbach's alpha. Content validity was measured through an extensive review of international literature and the evaluation criteria of major international quality awards. Principal Component Factor Analysis was used to evaluate construct validity with a cut-off factor loading of 0.45. Criterion validity was determined by examining Pearson's multiple correlation co-efficient. Bivariate correlation analysis was employed in determining whether the relationships between the TQM constructs were significant. Finally, they examined the relationship between the TQM elements and Organisational Performance by means of multiple regression analysis.

A number of other scholars and researchers, such as Cai (2009), Fotopoulos and Psomas (2009), Tiku and Pecht (2010), and Parast, Adams and Jones (2011), have used the foregoing statistical techniques in analysing their data.

In summary, both descriptive and inferential statistics will be utilised in this study to analyse the data. The descriptive analysis involves the calculation of means and standard deviations together with graphical representations in the form of charts and diagrams. Reliability will be measured using Cronbach's alpha and factor analysis employed in measuring validity. In addition, multiple regression analysis will test hypotheses H_1 and H_2. Hypothesis H_3 will be tested through correlation analysis.

3.8 PRELIMINARY WORK

The preliminary work for this study involved the testing of the questionnaire before it could be administered to the target population in the main study. This preliminary work was in the form of pre-test, the purpose of which was to identify ambiguity in the wording of the questions and to eliminate problematic questions.

The questionnaire consisted of a total of 28 questions (6 questions on Leadership, 6 questions on Employee Involvement, 6 questions on Customer Focus, 5 questions on Quality Improvement, and 5 questions on Organisational Performance). The respondents were drawn through a simple random sample taken from the same target population as the main study. It is expected that the responses obtained from the pilot study would be indicative of the responses to be obtained from the main study. The questionnaire was distributed to a sample of 5 footwear manufacturing organisations.

The reliability of the questions in measuring a construct were tested using Cronbach's alpha. *Table 3.2* indicates Cronbach's alpha for each of the constructs.

Table 3.2 Reliability coefficients

Construct	***Cronbach's alpha***
Leadership	0.809
Employee Involvement	0.755
Customer Focus	0.467
Quality Improvement	0.882
Organisational Performance	0.631
Overall	0.814

Although the coefficients for Customer Focus and Organisational Performance are below the acceptable level of 0.70, it is expected that the main study which has a larger sample will provide a better indication of the reliability of the questions. However, the overall coefficient of 0,814 shows that the reliability of the questionnaire was acceptable.

3.9 CONCLUSION

This chapter provided a review of the research design and methodology to be used in this study. In addition, a differentiation between quantitative, qualitative, and mixed methods of research was presented. This was followed by a detailed discussion on the various statistical measures and techniques that will be employed in testing the hypotheses of this study. The next chapter will make use of the statistical techniques to analyse the data, obtain the results, and interpret these results.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 INTRODUCTION

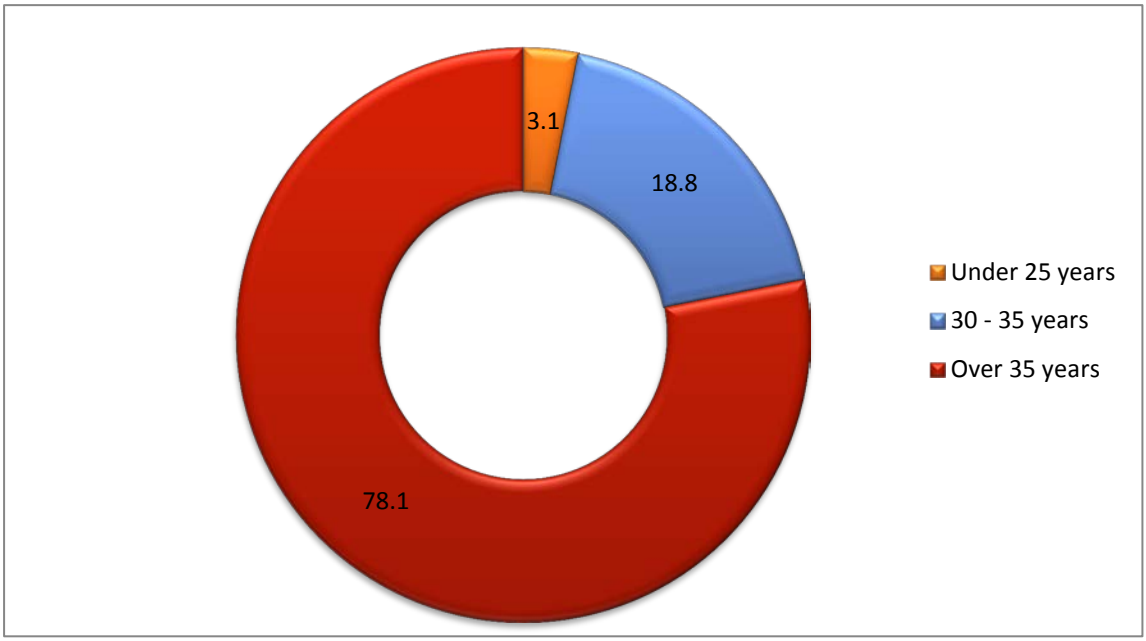
This chapter analyses the data, presents the results and discuss the findings of the main study. The data were collected by means of a questionnaire directed to the quality manager or senior executive in charge of quality. Questionnaires were distributed to a random sample of 45 footwear manufacturing organisations in the eThekwini region of Kwazulu-Natal. In total, 32 organisations participated in the main study, representing a response rate of 71 per cent.

The SPSS version 20.1 software package will be used to analyse the data collected from the responses. Since the study is statistical in nature, the results will be presented in the form of tables and charts for ease of interpretation. Descriptive measures of statistics will be used to analyse the qualitative data, and the quantitative data will be analysed through factor analysis, measures of reliability and validity, and multiple regression analysis.

4.2 DESCRIPTIVE MEASURES OF DEMOGRAPHIC INFORMATION

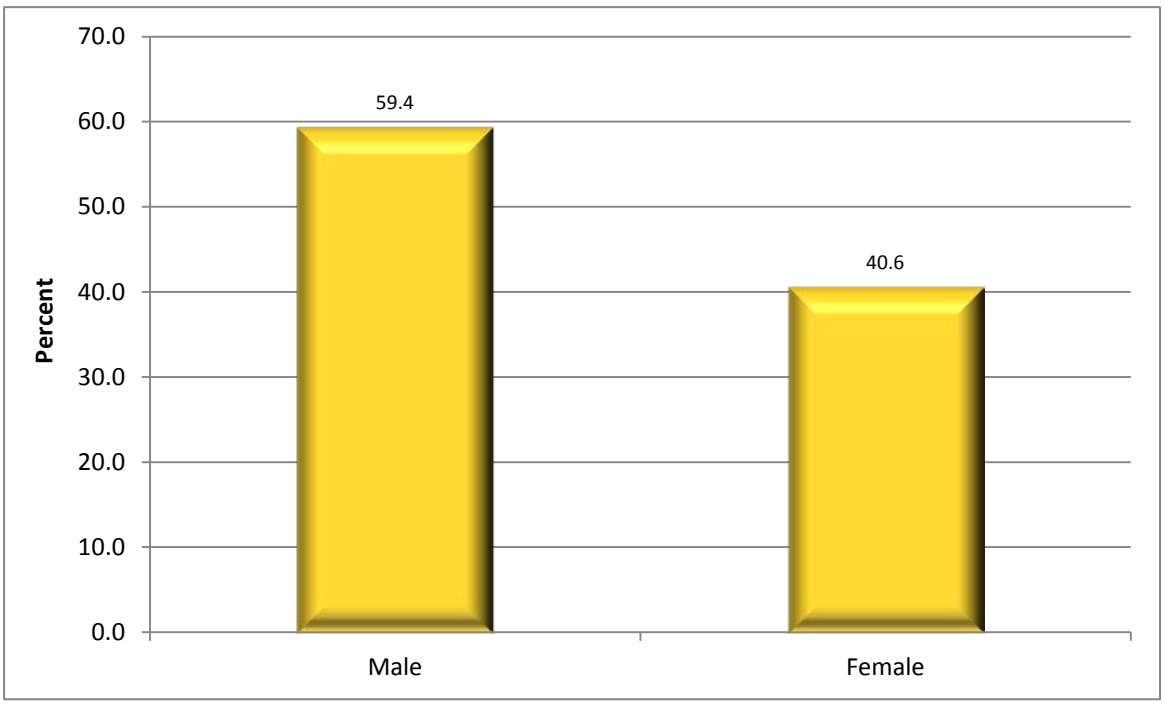
This section presents the descriptive statistics based on the demographic information of the study. The results are presented in the form of charts.

Figure 4.1: Age group of respondents



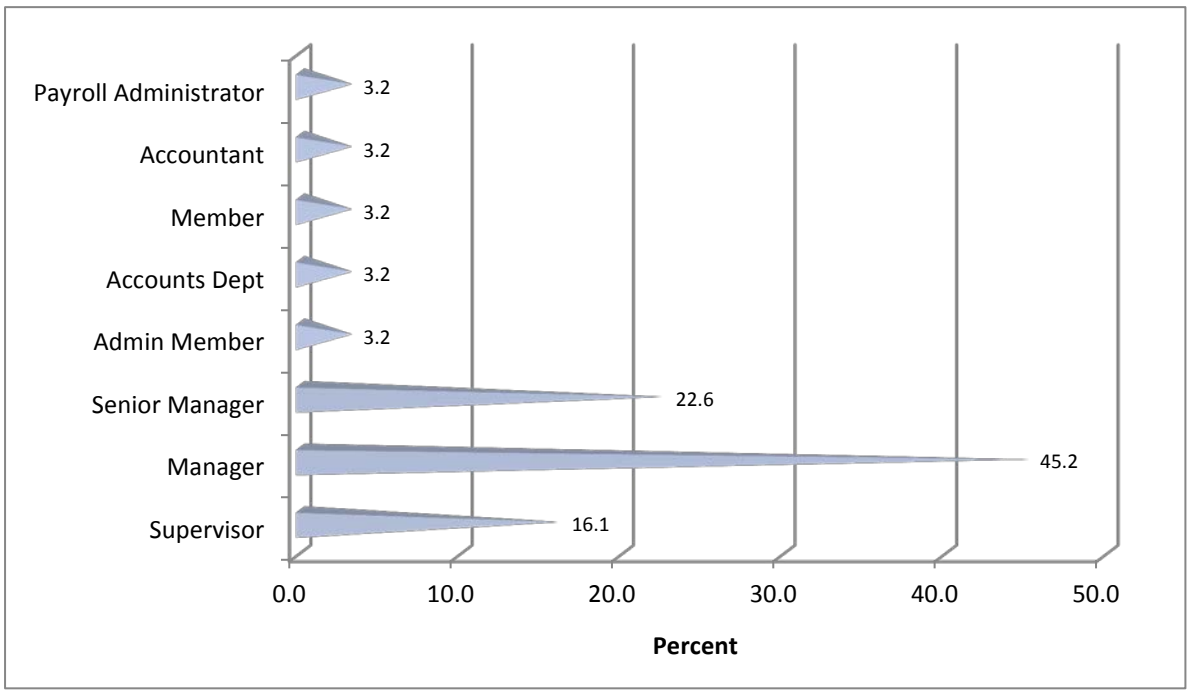
As indicated in *Figure 4.1,* more than three quarters of the respondents (78.1%) were older than 35 years, followed by 18.8% in the age group 30-35 years. The smallest percentage respondents (3.1%) were represented in the 25 year or less age group. It is evident from these results that, in the sampled footwear organisations, older personnel were involved in quality improvements.

Figure 4.2: Gender of respondents



An examination of *Figure 4.2* above shows that the sample comprised males to females in the ratio of 3:2. More specifically, 59.4% were male and 40.6% were females. This grouping also formed the largest component by gender. It is evident from these percentages that in the sampled footwear manufacturing organisations there were more males (59.4%) than females (40.65%) responsible for quality improvements in their organisations.

Figure 4.3: Position of respondents in the organisation



As indicated in *Figure 4.3*, most of the respondents were in managerial positions: managers (45.2%), senior managers (22.6%) or supervisors (16.1%). Less than 4% of the respondents occupied other positions in the organisation. The percentages (45.2% and 22.6%) indicate that quality improvement efforts are led by personnel in management positions.

Figure 4.4: Years of experience in the quality field

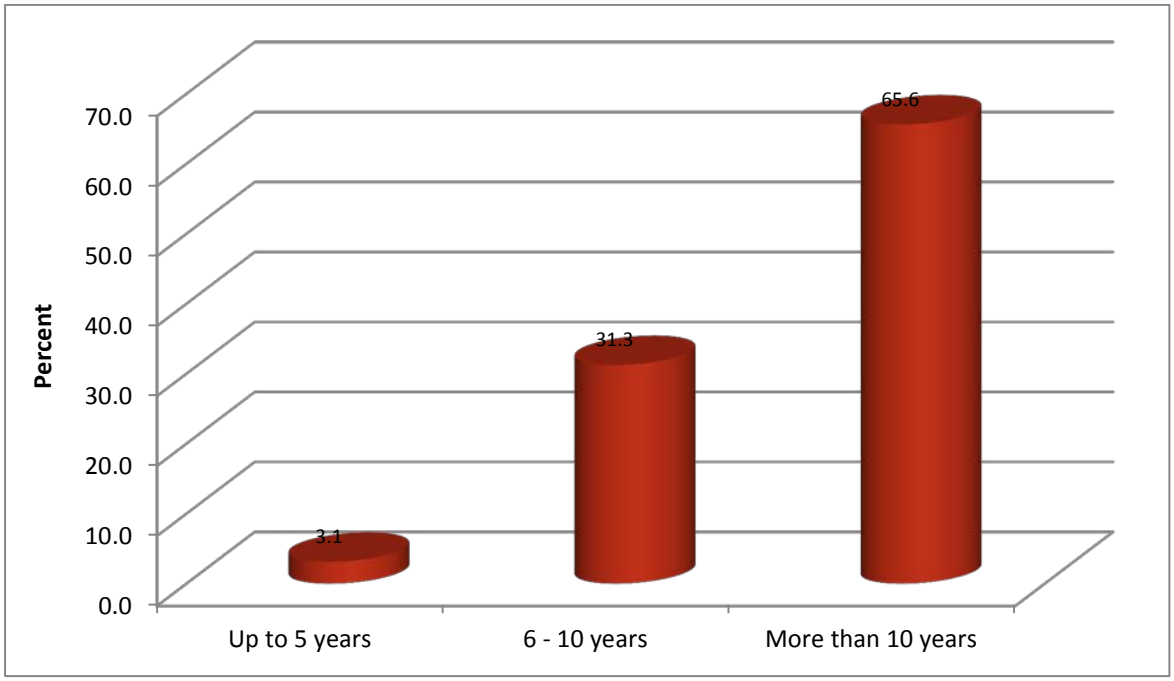


Figure 4.4 show that a large percentage of the respondents had more than 10 years of quality experience (65.6%) and 31.3% had 6-10 years of experience in the quality field. Less than 4% of the respondents had up to 5 years of experience in quality. These percentages indicate that quality improvement efforts are led by personnel with a significant level of experience in quality.

4.3 DESCRIPTIVE MEASURES OF RESPONSES

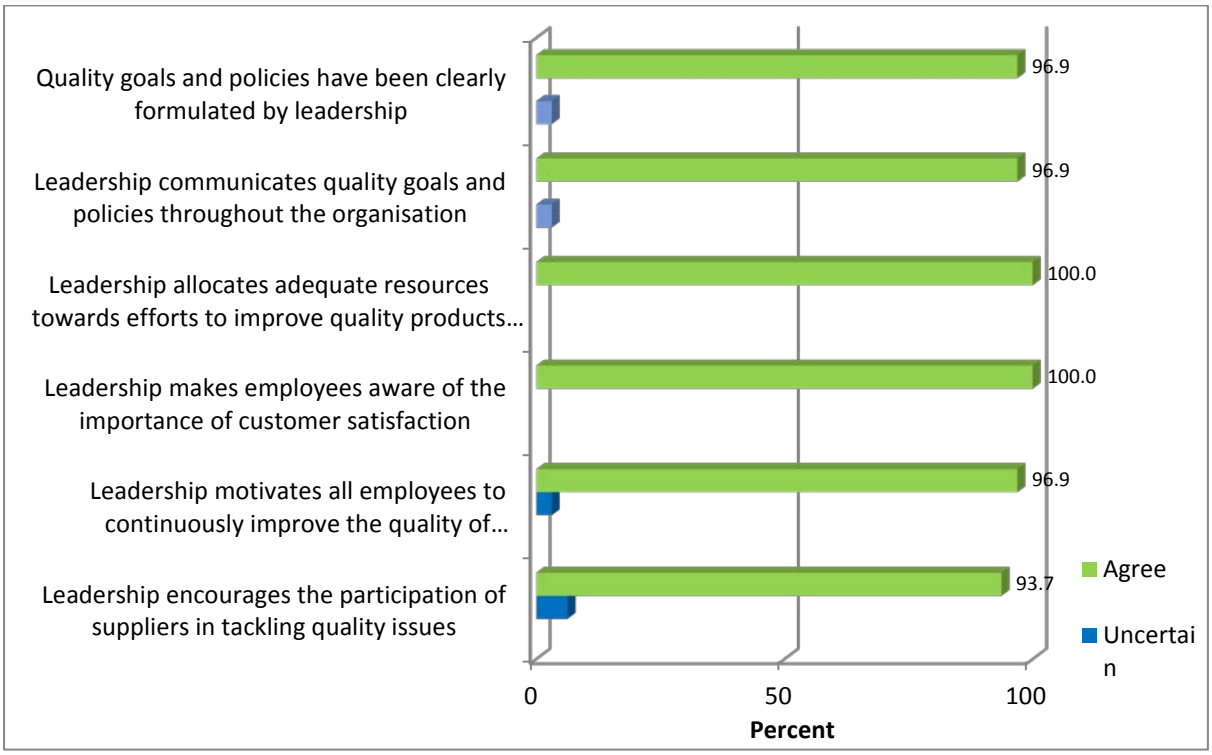
The charts below indicate the responses as percentages for each dimension of the TQM elements.

4.3.1 Leadership

The six dimensions, as identified in the literature review in Chapter 2, were included in the research questionnaire to measure Leadership's commitment to quality. *Figure 4.5* indicates the results. Based on the responses from the sampled footwear manufacturing organisations, it was found that all respondents (100%) were in agreement that "Leadership allocates adequate resources towards efforts to improve quality of products and processes" and that "Leadership makes employees aware of the importance of customer satisfaction". A slightly lower percentage of respondents (96.9%) felt that "Quality goals and policies have been clearly formulated by Leadership" and that "Leadership communicates quality goals and policies throughout the organisation". Also, the same percentage of the respondents (96.9%) was in agreement that "Leadership motivates all employees to continuously improve quality of products and processes". The lowest percentage (93.7%) of respondents indicated that "Leadership encourages the participation of suppliers in tackling quality issues".

The average level of agreement for the dimensions of Leadership was found to be 97.4%. The high percentages (more than 90%) recorded for each of the six dimensions of Leadership indicates that respondents in the sampled footwear manufacturing organisations were in agreement that Leadership was committed to improving quality in their organisations.

Figure 4.5: Leadership

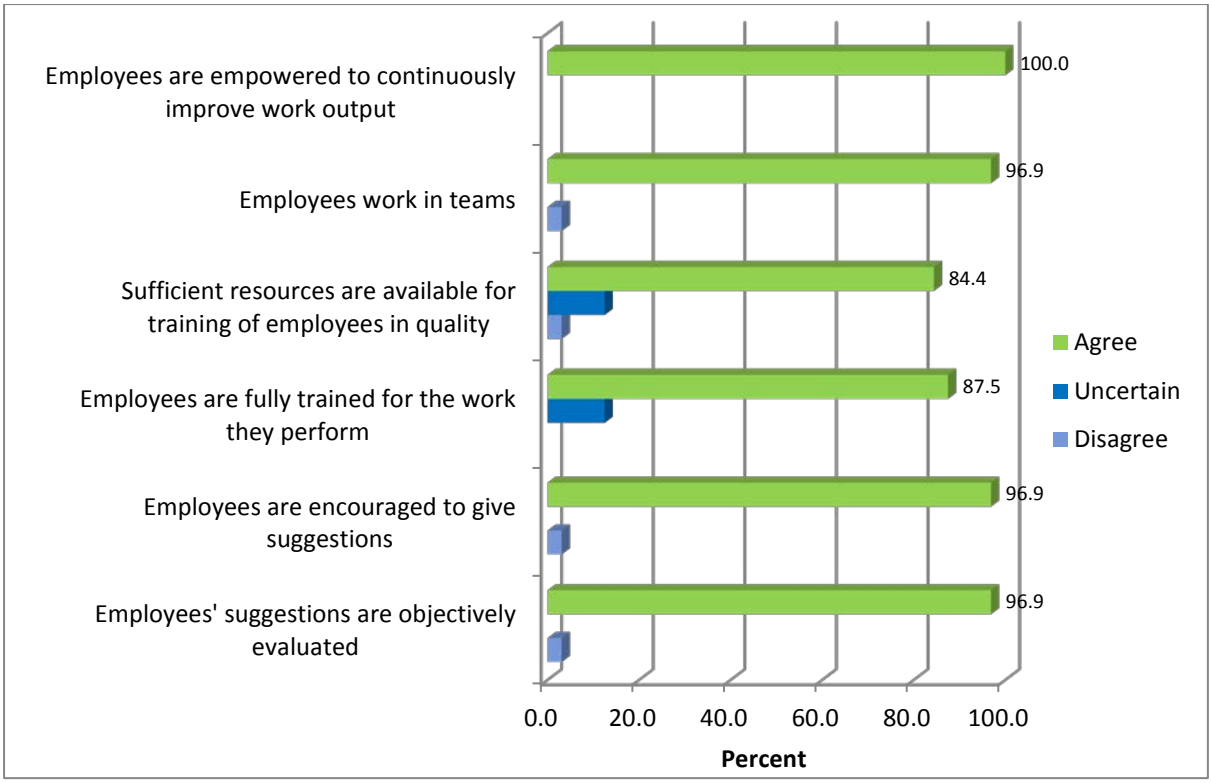


4.3.2 Employee Involvement

The literature review in Chapter 2 identified six dimensions that were generally regarded as adequate measures of Employee Involvement in the quality effort. These six dimensions were included in the research questionnaire to measure Employee Involvement. The responses from the sampled footwear manufacturing organisations, as shown in *Figure 4.6*, indicate that all respondents (100%) were in agreement that "Employees were empowered to continuously improve work output". Three of the dimensions recorded a slightly lower percentage (96.9%). These three dimensions were "Employee work in teams", Employees are encouraged to give suggestions", and "Employees' suggestions are objectively evaluated". The other two dimensions recorded lower levels of agreement among respondents, namely, "Sufficient resources are available for training of employees in quality" (84.4%) and "Employees are fully trained for the work they perform" (87.4%). These two dimensions were responsible for lowering the average level of agreement (93.8%) among respondents in respect of the Employee Involvement construct. This high

percentage is indicative of the high levels of Employee Involvement in quality improvement in the sampled footwear manufacturing organisations.

Figure 4.6: Employee Involvement

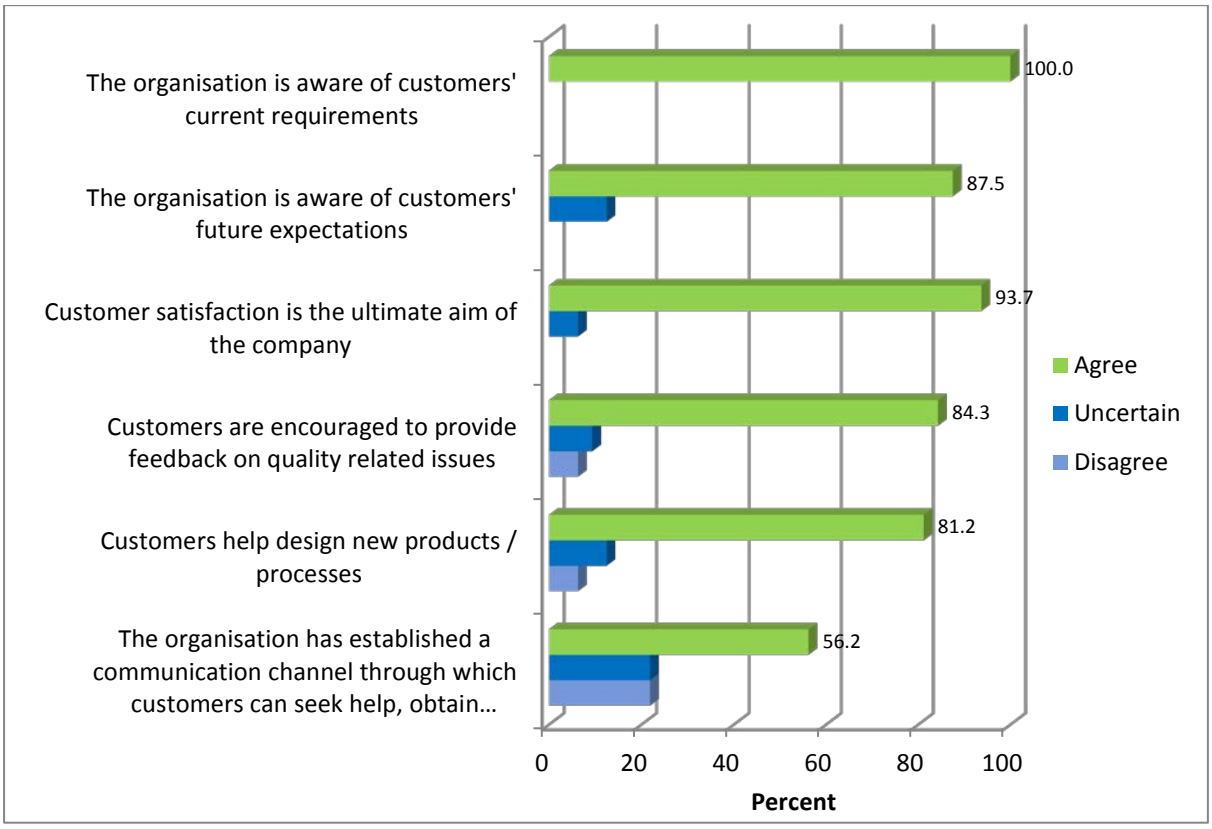


4.3.3 Customer Focus

Six dimensions, which were also identified in the literature review in Chapter 2, were included in the research questionnaire to measure the Customer Focus construct. As indicated in *Figure 4.7*, all the respondents (100%) in the sampled footwear manufacturing organisations were in agreement that "The organisation is aware of customers' current requirements". A large percentage (93.7%) of the respondents agreed that "Customer satisfaction is the ultimate aim of the organisation". High levels of agreement among respondents were recorded for three of the dimensions, namely, "The organisation is aware of customers' future expectations" (87.5%), "Customers are encouraged to provide feedback on quality related issues" (84.3%) and "Customers help design new products/processes" (81.2%). The responses

showed a very low level of agreement (56.2%) for the dimension “The organisation has established a communication channel through which customers can seek help, obtain information, and make complaints”. However, the average level of agreement among respondents for the Customer Focus construct was very high at 83.8%. The results indicate that the sampled footwear manufacturing organisations are aware of the importance of their customers and have taken measures in achieving customer satisfaction to improve quality.

Figure 4.7: Customer Focus



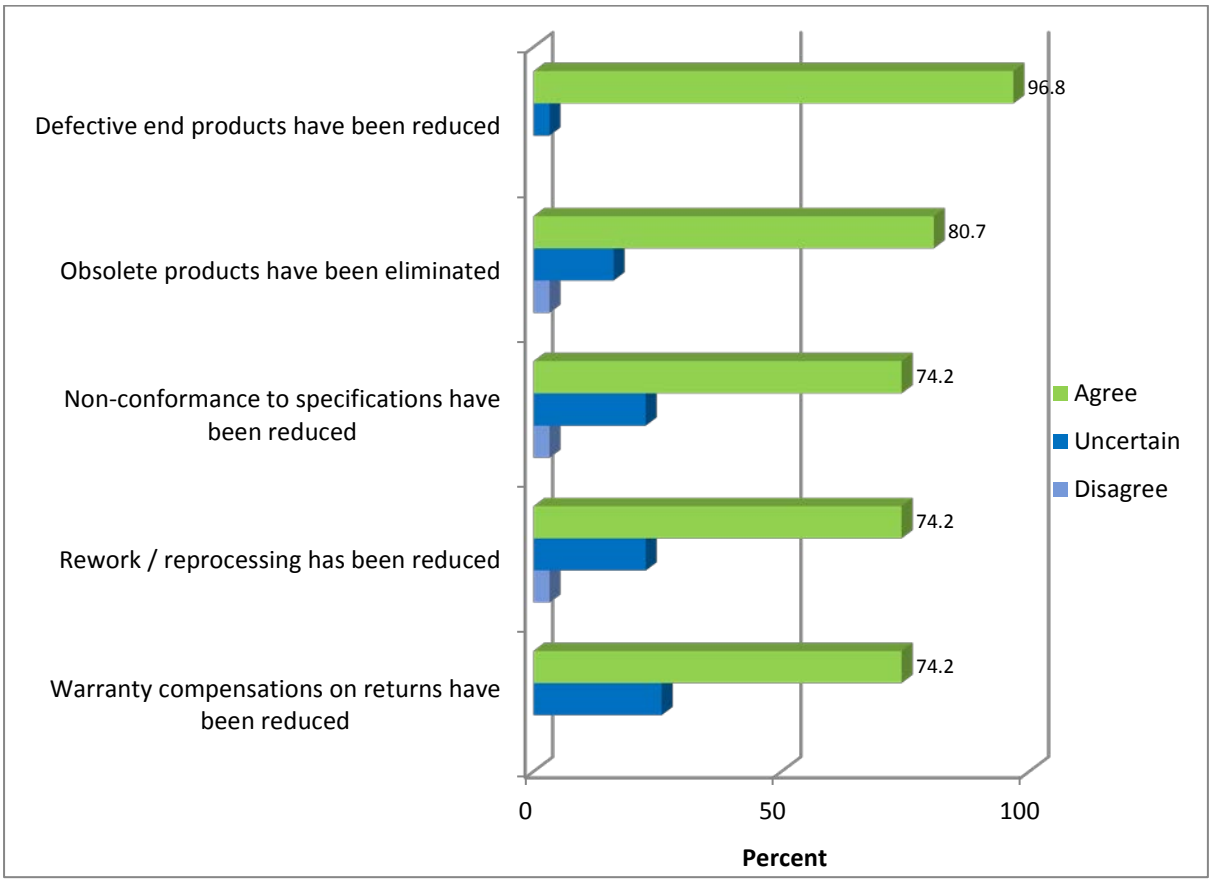
4.3.4 Quality Improvement

The literature review in Chapter 2 identified five dimensions, which were incorporated in the research questionnaire, as essential measures of Quality Improvement in organisations. *Figure 4.8* indicates that most of the respondents (96.8%) were in agreement that “Defective end products have been reduced”. A

high percentage of the respondents (80.7%) agreed that “Obsolete products have been eliminated”. However, much lower levels of agreement (74.2%) among respondents were recorded for the other three dimensions, namely, “Non-conformance to specifications have been reduced”, “Rework/reprocessing has been reduced” and “Warranty compensations on returns have been reduced”.

The average level of agreement among respondents in respect of the Quality Improvement construct was the lowest (80%) of the five constructs. Generally, these results indicate that the respondents in the sampled footwear manufacturing organisations were, to some extent, committed to improving quality in their organisations.

Figure 4.8: Quality Improvement

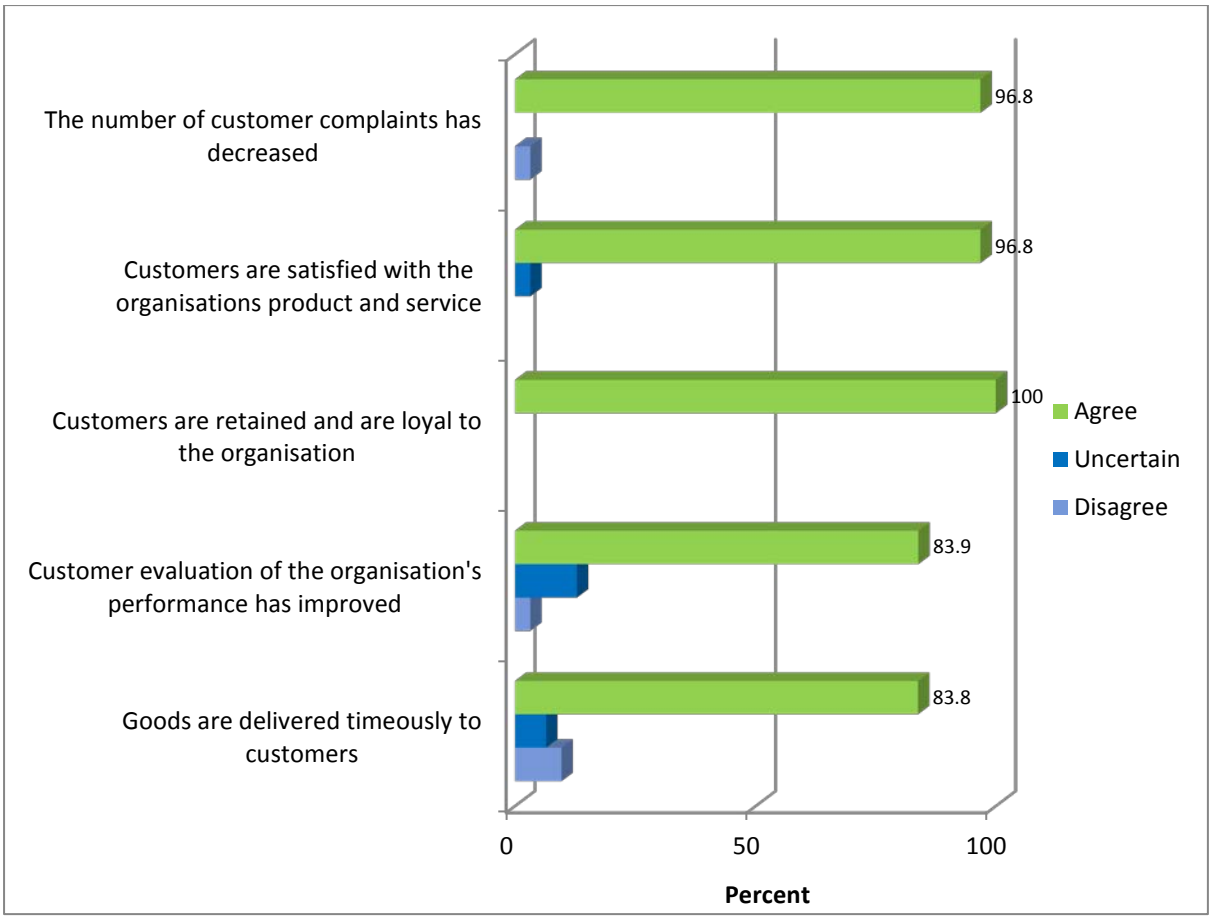


4.3.5 Organisational Performance

The five dimensions that were identified in the literature review in Chapter 2 as essential measures of Organisational Performance were incorporated in the research questionnaire. *Figure 4.9* shows that all the respondents (100%) in the sampled footwear manufacturing organisations were in agreement that "Customers are retained and are loyal to the organisation. A high percentage of the respondents (96.8%) agreed that "The number of customer complaints has decreased" and that "Customers are satisfied with the organisation's product and service". Slightly lower levels of agreement were recorded for the dimensions "Customer evaluation of the organisation's performance" (83.9%) and "Goods are delivered timeously to customers" (83.8%).

The average level of agreement for the dimensions of Organisational Performance was 92.3%. This high percentage indicates that, overall, there was agreement among the respondents that the sampled footwear manufacturing organisations are enhancing Organisational Performance through customer satisfaction.

Figure 4.9: Organisational Performance



4.4 DESCRIPTIVE MEASURES: MEANS AND STANDARD DEVIATIONS

The means and standard deviations for each of the independent variable (Leadership, Employee Involvement, and Customer Focus) and each of the dependent variable (Quality Improvement and Organisational Performance) are presented in *Table 4.1*. The means for the dimensions of a construct are ranked to determine the overall level of perception on the TQM elements, Quality Improvement and Organisational Performance.

Table 4.1: Descriptive statistics

Leadership	**Ranking by mean**	**Mean**	**Std. Deviation**
Quality goals and policies have been clearly formulated by leadership	6	4.19	0.59
Leadership communicates quality goals and policies throughout the organisation	3	4.25	0.62
Leadership allocates adequate resources towards efforts to improve quality products and processes	4	4.22	0.42
Leadership makes employees aware of the importance of customer satisfaction	2	4.28	0.46
Leadership motivates all employees to continuously improve the quality of products and processes	1	4.34	0.55
Leadership encourages the participation of suppliers in tackling quality issues	4	4.22	0.55
Overall		4.25	0.37

Employee Involvement	**Ranking by mean**	**Mean**	**Std. Deviation**
Employees are empowered to continuously improve work output	1	4.44	0.50
Employees work in teams	2	4.34	0.65
Sufficient resources are available for training of employees in quality	6	4.13	0.75
Employees are fully trained for the work they perform	4	4.19	0.64
Employees are encouraged to give suggestions	3	4.28	0.52
Employees' suggestions are objectively evaluated	5	4.16	0.57
Overall		4.26	0.29

Customer Focus	**Ranking by mean**	**Mean**	**Std. Deviation**
The organisation is aware of customers' current requirements	2	4.38	0.49
The organisation is aware of customers' future expectations	3	4.22	0.66
Customer satisfaction is the ultimate aim of the company	1	4.47	0.62
Customers are encouraged to provide feedback on quality related issues	4	4.19	0.86
Customers help design new products / processes	5	4.06	0.84
The organisation has established a communication channel through which customers can seek help, obtain information, and make complaints	6	3.53	1.05
Overall		4.14	0.50

Quality Improvement	Ranking by mean	Mean	Std. Deviation
Defective end products have been reduced	1	4.06	0.36
Obsolete products have been eliminated	2	3.87	0.62
Non-conformance to specifications have been reduced	5	3.77	0.76
Rework / reprocessing has been reduced	4	3.81	0.65
Warranty compensations on returns have been reduced	2	3.87	0.62
Overall		3.88	0.42

Organisational Performance	Ranking by mean	Mean	Std. Deviation
The number of customer complaints has decreased	3	4.06	0.51
Customers are satisfied with the organisations product and service	2	4.13	0.43
Customers are retained and are loyal to the organisation	1	4.16	0.37
Customer evaluation of the organisation's performance has improved	5	3.97	0.66
Goods are delivered timeously to customers	3	4.06	0.89
Overall		4.08	0.37

An examination of *Table 4.1* shows that, in general, 22 out of the 28 surveyed dimensions were frequently implemented in the sampled footwear manufacturing organisations. The mean values of the 22 dimensions exceeded 4.00 (agree to strongly agree) on the five-point Likert scale. Six dimensions had mean values that were slightly below 4.00. These were “The organisation has established a communication channel through which customers can seek help, obtain information, and make complaints” (3.53), “Obsolete products have been eliminated” (3.87), “Non-conformance to specifications have been reduced” (3.77), “Rework/reprocessing has been reduced” (3.81), “Warranty compensations on returns have been reduced” (3.88), and “Customer evaluation of organisation performance" (3.97). It can be observed that 4 out of the 6 dimensions relate to Quality Improvement. Furthermore, all the TQM constructs have mean values above 4.00 except for Quality Improvement which has a slightly lower mean value of 3.88. These results indicate that the footwear manufacturing organisations used in this

study are employing TQM elements in improving quality and enhancing Organisational Performance.

A comparison of the mean values of the five TQM constructs show that "Employee Involvement" was the most frequently used construct with a mean value of 4.26. Also, within this construct, all the dimensions have mean values exceeding 4.00 indicating that the frequent use of these dimensions are essential in measuring employee involvement in quality. Similarly, the "Leadership" construct was reported to have almost the same mean value (4.25) as the "Employee Involvement" construct and, with all dimensions within the "Leadership" construct having mean values exceeding 4.00. Hence, these dimensions can be considered as accurate measures of Leadership's commitment to quality.

As for the "Customer Focus" construct (mean value of 4.14), the first four dimensions were reported to be the most commonly used measures with each of the mean values exceeding 4.00. However, "Establishing communication channels for customers to seek help, obtain information, and make complaints" (3.53) was ranked the lowest in measuring this construct. In a similar manner, the "Organisational Performance" construct (4.08) had four dimensions which were considered as essential measures of Organisational Performance. The lowest ranking of these dimensions was "Customer evaluation of the organisation's performance has improved" (3.97).

The "Quality Improvement" construct reported the lowest mean value (3.88), indicating that this construct was the least used of all the TQM constructs employed in this study. Also, except for the dimension "Defective end products have been reduced" (4.06), all the other dimensions measuring this construct were slightly lower than 4.00. Nevertheless, these mean values show that the dimensions are, to a large extent, accurate measures of Quality Improvement.

4.5 RELIABILITY ANALYSIS

The reliability of the questionnaire was tested by using Cronbach's alpha measurement. Reliability tests were conducted on all the TQM constructs that were used in this study. According to literature, a reliability coefficient of 0.70 or higher is considered as "acceptable". Cronbach's alpha values of the TQM constructs are shown in *Table 4.2*.

Table 4.2: Cronbach's alpha

TQM construct	Cronbach's Alpha
Leadership	0.783
Employee Involvement	0.568
Customer Focus	0.725
Quality Improvement	0.698
Organisational Performance	0.688
Overall	**0.779**

All of the TQM constructs that constituted this study had reliability values greater than the suggested value of 0.7, except for the Employee Involvement construct (0.568) which was slightly lower than the minimum acceptable level. This can be interpreted as employee involvement consisting of multiple dimensions, not all of which are reliable measures of employee involvement. However, the acceptable scores indicate a high level of consistent responses.

4.6 FACTOR ANALYSIS

A varimax rotated principal component factor analysis was conducted on the 28 dimensions assigned to the TQM constructs (Leadership, Employee Involvement, Customer Focus, Quality Improvement, and Organisational Performance) to ensure that they are reliable indicators of these constructs. A loading of 0.5 or greater was considered as adequate when interpreting the factor. The results of factor analysis are summarised in *Table 4.3*.

Table 4.3: Rotated component matrices for the TQM constructs

Leadership	Component	
	1	2
Quality goals and policies have been clearly formulated by leadership	-.026	.863
Leadership communicates quality goals and policies throughout the organisation	.137	.763
Leadership allocates adequate resources towards efforts to improve quality products and processes	.336	.894
Leadership makes employees aware of the importance of customer satisfaction	.824	.216
Leadership motivates all employees to continuously improve the quality of products and processes	.963	.058
Leadership encourages the participation of suppliers in tackling quality issues	.863	.117

Employee Involvement	Component		
	1	2	3
Employees are empowered to continuously improve work output	.057	.857	.109
Employees work in teams	-.019	.788	-.192
Sufficient resources are available for training of employees in quality	-.500	.451	.597
Employees are fully trained for the work they perform	.193	-.165	.889
Employees are encouraged to give suggestions	.834	.011	.166
Employees' suggestions are objectively evaluated	.856	.037	-.043

Customer Focus	Component	
	1	2
The organisation is aware of customers' current requirements	.827	.196
The organisation is aware of customers' future expectations	.795	.020
Customer satisfaction is the ultimate aim of the company	.815	.118
Customers are encouraged to provide feedback on quality related issues	.299	.805
Customers help design new products / processes	.157	.896
The organisation has established a communication channel through which customers can seek help, obtain information, and make complaints	-.051	.756

Quality Improvement	Component	
	1	2
Defective end products have been reduced	.802	-.301
Obsolete products have been eliminated	.892	.227
Non-conformance to specifications have been reduced	.734	.563
Rework / reprocessing has been reduced	-.026	.886
Warranty compensations on returns have been reduced	.095	.727

Organisational Performance	Component	
	1	2
The number of customer complaints has decreased	.832	-.274
Customers are satisfied with the organisations product and service	.930	.065
Customers are retained and are loyal to the organisation	.790	.163
Customer evaluation of the organisation's performance has improved	.059	.956
Goods are delivered timeously to customers	.541	.254

An examination of the factors of the dimensions measuring the TQM constructs shows that all the dimensions split into at least two trends or patterns. The dimensions relating to Leadership was split into two components. This implies that respondents identified two trends within this construct. Examining this alignment reveals that the first three dimensions are related to leaders creating policy whilst the latter three relate to leaders encouraging staff.

In contrast, the Employee Involvement dimensions split into three components. This means that respondents identified employee empowerment as one trend, resources and training as another trend, and employee suggestions as the third trend.

Like the Leadership construct, the dimensions measuring Customer Focus were split into two components. The first trend related to customer requirements and satisfaction and the second trend related to customer input. Similarly, the Quality Improvement dimensions split into two components. Respondents identified product improvement as one trend and product policy

as another trend. Organisational Performance was also split into two components. The two trends identified by the respondents were customer satisfaction and customer input.

4.7 VALIDITY

The three types of validity, as discussed in Chapter 3, considered in this study were content validity, construct validity, and criterion-related validity.

4.7.1 Content validity

A measuring instrument has content validity if the measurement dimensions of each construct cover all aspects of the construct being measured. In terms of content validity, the measuring instrument for this study meets the requirements, since the dimensions were:

- Based on an extensive review of international literature;
- Reviewed by academics in the quality field; and
- Tested by a sample of practicing quality managers.

4.7.2 Construct validity

The validity of each construct was evaluated through Principal Components Factor Analysis. The measurement dimensions for each construct were factor analysed with the results shown in *Table 4.3* above. All factors were above the minimum acceptable level of 0.5. This means that all factors loaded acceptably well.

4.7.3 Criterion-related validity

The coefficient of multiple correlation (*R*) for the three independent variables (Leadership, Employee Involvement, and Customer Focus) and the dependent variable (Quality Improvement) was used to determine the validity of the measuring instrument. This multiple correlation was *R* = 0.639 (*Table 4.5(a)*) below. Also, the multiple correlation for the three independent

variables (Leadership, Employee Involvement, and Customer Focus) and the dependent variable (Organisational Performance) was used to determine the validity of the measuring instrument. This multiple correlation was $R = 0.375$ (*Table 4.6(a)*) below. These multiple correlations indicate that the five constructs have reasonably high degree of criterion-related validity when taken together.

4.8 CORRELATION ANALYSIS

Pearson's correlation analysis was carried out to determine the relationship among the constructs (variables). The result of the correlation analysis is displayed in *Table 4.4*.

Table 4.4: Correlation matrix of independent variables

		Leadership	Employee Involvement	Customer Focus	Quality Improvement	Organisational Performance
Leadership	*r*	1.000				
	p	.				
Employee Involvement	*r*	0.395**	1.000			
	p	0.025	.			
Customer Focus	*r*	0.029	0.194	1.000		
	p	0.874	0.288	.		
Quality Improvement	*r*	0.380*	0.225	0.438*	1.000	
	p	0.035	0.223	0.014	.	
Organisational Performance	*r*	0.375**	0.093	-0.070	0.189	1.000
	p	0.038	0.620	0.707	0.309	.

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.4 shows that there is a significant positive correlation between Leadership and Quality Improvement (r = 0.380, p = 0.035). Also, Leadership has a significant positive correlation with Organisational Performance (r = 0.375, p = 0.038). Further, Customer Focus has a significant positive correlation with the Quality Improvement (r = 0.438, p = 0.014). However, Customer Focus is not significantly correlated with Organisational Performance.

In general, *Table 4.4* indicates that, except for the relationship between Customer Focus and Organisational Performance, positive correlations exist between the variables. These positive values indicate a proportional relationship between the variables. This means that both variables have the same directional effect. For example, Leadership's commitment to quality would improve quality and enhance Organisational Performance. Also, organisations that focus on their customers would significantly improve quality.

4.9 MULTIPLE REGRESSION ANALYSIS

4.9.1 The relationship between the independent variables (Leadership, Employee Involvement, and Customer Focus) and the dependent variable (Quality Improvement)

The following tables show the results of the multiple regression analysis on Quality Improvement.

Table 4.5(a): Model summary

Model 1	R	R^2	Adjusted R^2	Std. Error of the Estimate
	0.639[a]	0.408	0.366	0.33069

edictors: (Constant), Customer Focus, Leadership

Table 4.5(b): ANOVA

Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.112	3	1.056	9.658	0.001[b]
1 Residual	3.062	28	0.109		
Total	5.174	30			

a. Dependent Variable: Quality Improvement

b. Predictors: (Constant), Customer Focus, Leadership

Table 4.5(c): Coefficients

Model 1	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	B		
(Constant)	0.247	0.853		0.290	0.774
Leadership	0.423	0.161	0.382	2.620	0.014
Customer Focus	0.438	0.130	0.491	3.371	0.002

a. Dependent Variable: Quality Improvement

The above regression analysis identified Leadership (t = 2.441; p = 0.021) and Customer Focus (t = 3.298; p = 0.003) as the two significant variables (*Table 4.5(c)*). Predictor variables with $t \geq 1.96$ and $p \leq 0.05$ are significant in explaining the dependent variable. This means that these two predictor variables (Leadership and Customer Focus) were found to be significant in explaining Quality Improvement. The contribution of the predictor variable Employee Involvement was not significant (t = -0.207, p = 0.838) to the

variation of the dependent variable (Quality Improvement). Hence, Employee involvement was excluded since it did not contribute in significance to the change in Quality Improvement. Using the information in *Table 4.5(c),* the estimated regression model is as given in the following regression equation:

$$Y(QI) = 0.247 + 0.423(X_1) + 0.438(X_2) + e$$

where X_1 = *Leadership variable*

X_2 = *Customer Focus variable*

These estimates provide an indication of the relationship between the independent variables (Leadership and Customer Focus) and the dependent variable (Quality Improvement). Hence, for every unit increase in the Leadership variable, a 0.423 unit increase in Quality Improvement is predicted while the other independent variable (Customer Focus) is held constant. Similarly, for every unit increase in the Customer Focus variable, a 0.438 unit increase in Quality Improvement is predicted while the Leadership variable is held constant.

The coefficient of determination (R^2) is an estimate of the percentage variation in the dependent variable (Quality Improvement) which can be predicted from the independent variables (Leadership, and Customer Focus). This coefficient shows how well the multiple regression model fits the data. A value close to zero indicates a weak fit whereas a value close to one implies a good fit. The R^2-value of 0.408 (*Table 4.5(a)*) indicates that 40.8% of the variation in Quality Improvement can be explained by the two predictor variables (Leadership and Customer Focus).

Alpha values (typically 0.01 or 0.05) are used in determining the level of significance. For comparison purposes, this study will use the alpha value of 0.05. The ANOVA table (*Table 4.5(b)*) revealed that the *F*-statistic (9.658) is greater than the critical *F*-value (3.34) and the associated *p*-value (0.001) is smaller than the alpha value (0.05). It shows that the multiple regression

model is a significant predictor of Quality Improvement. This means that Leadership and Customer Focus have a significant impact on Quality Improvement.

The beta (β) coefficients reflected in *Table 4.5(c)* are the values for the regression equation for predicting the dependent variable from the independent variable. The largest beta (β) coefficient is 0.438, corresponding to Customer Focus (independent variable). This means that one standard deviation increase in Customer Focus is followed by 0.438 standard deviation increase in Quality Improvement. Similarly, the other positive beta coefficient (0.423) corresponding to Leadership (independent variable) means that one standard deviation increase in leadership is followed by 0.423 standard deviation increase in Quality Improvement. Since both coefficients are positive and both *p*-values are less than 0.05, it can be concluded that both Leadership and Customer Focus have a positive and significant effect on Quality Improvement.

Hence, based on the above multiple regression analysis, the first hypothesis (H_1) that relates the three TQM elements to Quality Improvement is partially supported.

4.9.2 The relationship between the Independent variables (Leadership, Employee Involvement, and Customer Focus) and the dependent variable (Organisational Performance).

The following tables show the results of the multiple regression analysis on Quality Improvement.

Table 4.6(a): Model summary

Model 1	R	R Square	Adjusted R Square	Std. Error of the Estimate
	0.375[a]	0.141	0.111	0.35337

a. Predictors: (Constant), Leadership

Table 4.6(b): ANOVA

Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.593	1	0.593	4.749	0.038[b]
Residual	3.621	29	0.125		
Total	4.214	30			

a. Dependent Variable: Organisational Performance

b. Predictors: (Constant), Leadership

Table 4.6(c): Coefficients

Model 1	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.480	0.736		3.370	0.002
Leadership	0.375	0.172	0.375	2.179	0.038

a. Dependent Variable: Organisational Performance

The above regression analysis identified Leadership (t = 2.179; p = 0.038) as the only significant variable (*Table 4.6(c)*). This means that Leadership was found to be the only significant variable in explaining Organisational Performance. The contributions of the other predictor variables (Employee Involvement and Customer Focus) were not significant to the variation of the dependent variable (Organisational Performance). Hence, Employee Involvement and Customer Focus were excluded since they did not contribute in significance to the change in Organisational Performance.

Table 4.6(a) shows that R^2 = 0.375. Hence, 37.5% of the variation in Organisational Performance can be explained by the Leadership predictor variable.

According to *Table 4.6(b), F* = 4.749 and *p* = 0.038. The critical *F*-value computed for this analysis is 4.18. The *F*-statistic (4.749) is greater than the critical *F*-value (4.18) and the *p*-value (0.038) is smaller than the alpha value (0.05). This means that Leadership had a significant impact on Organisational Performance.

The beta (β) coefficient for Leadership reflected in *Table 4.6(c)* is 0.375. Hence, a one standard deviation increase in Leadership is followed by 0.375 standard deviation increase in Organisational Performance. Since this coefficient is positive and has a *p*-value less than 0.05, it can be concluded that Leadership is a significant predictor of Organisational Performance.

Based on the above regression analysis, the second hypothesis (H_2) relating to TQM elements and Organisational Performance is partially supported.

4.9.3 The relationship between Quality Improvement (the independent variable) and the Organisational Performance (the dependent variable).

This relationship was examined by using Pearson's coefficient of correlation. These coefficients are shown in *Table 4.4* above. A positive linear relationship was found between Quality Improvement and Organisational Performance (*r* = 0.189). This positive coefficient means that an increase in the Quality Improvement variable would result in an increase in the Organisational Performance variable. Hence, this study has shown that Organisational Performance is enhanced in footwear manufacturing organisations by implementing the dimensions contained in the Quality Improvement construct. Thus, the third hypothesis relating to Quality Improvement and Organisational Performance is supported.

4.10 CONCLUSION

Data collected from a total of 32 footwear manufacturing organisations were analysed statistically in two phases. The qualitative data relating to age, gender, positions, and years of experience was analysed and represented by means of charts and diagrams. Further, the mean as a descriptive measure was used in analysing the responses contained in the measuring instrument.

The second phase of the statistical analysis tested the reliability and validity of the measuring instrument. In addition, regression and correlation was used in determining:

- The effect of the three TQM elements (Leadership, Employee Involvement, and Customer Focus) on Quality Improvement;
- The effect of the three TQM elements (Leadership, Employee Involvement, and Customer Focus) on Organisational Performance; and
- The effect of Quality Improvement on Organisational Performance.

The recommendations of this study will be presented in the concluding chapter. The chapter will also present some of the limitations of this study, as well as future research directions arising from this study.

CHAPTER 5

GENERAL FINDINGS AND RECOMMENDATIONS

5.1 INTRODUCTION

Based on theoretical and empirical literature, this study developed a theoretical research framework that incorporated the importance of TQM elements for quality improvement and organisational performance. The theoretical research framework indicating the relationships between the TQM elements, quality improvement, and organisational performance was presented in Chapter 2. Arising out of this research framework, three hypotheses were formulated which were presented in Chapter 3. These three hypotheses were tested by employing multiple regression and correlation analysis.

The main focus of this chapter will be on the findings of the main study and recommendations based on these findings. These findings will indicate whether or not the objectives of the study have been achieved. The chapter ends with some of the limitations of this study and possible areas for future research.

5.2 GENERAL FINDINGS

5.2.1 Descriptive statistical analysis

The responses with respect to the qualitative information were presented in the form of charts and diagrams. These responses were analysed in terms of age group, gender, position occupied in the organisation, and experience in the quality field. The findings indicate that, in the sampled footwear organisations, it was typical for older males to be involved in quality improvements. Also, quality improvement efforts were delegated to persons holding management positions in the organisation and who had much experience in the quality field.

Additionally, descriptive statistics was used in measuring the level of agreement among respondents regarding the dimensions employed in measuring the five constructs in this study. The average level of agreement showed that Leadership (97.4%) was the highest, followed by Employee Involvement (93.8%), Organisational Performance (92.3%), Customer Focus (83.8%), and Quality Improvement (80%). It is evident from this analysis that respondents in the sampled footwear organisations were in agreement that these dimensions were being applied in their organisations to measure the five constructs.

Further, the mean value for each dimension of a construct, as well as the mean value of each construct was calculated to determine the overall level of perception on the TQM elements, Quality Improvement and Organisational Performance. The mean values for all the dimensions and the constructs exceeded the middle value of 3.00 on the five-point Likert scale. These mean values indicate that the dimensions are accurate measures of each of the constructs.

5.2.2 Multiple regression analysis

Multiple regression analysis was used in this study to determine the significant variables on Quality Improvement. The results of the regression analysis showed that Leadership and Customer Focus were statistically significant in explaining the variability in Quality Improvement.

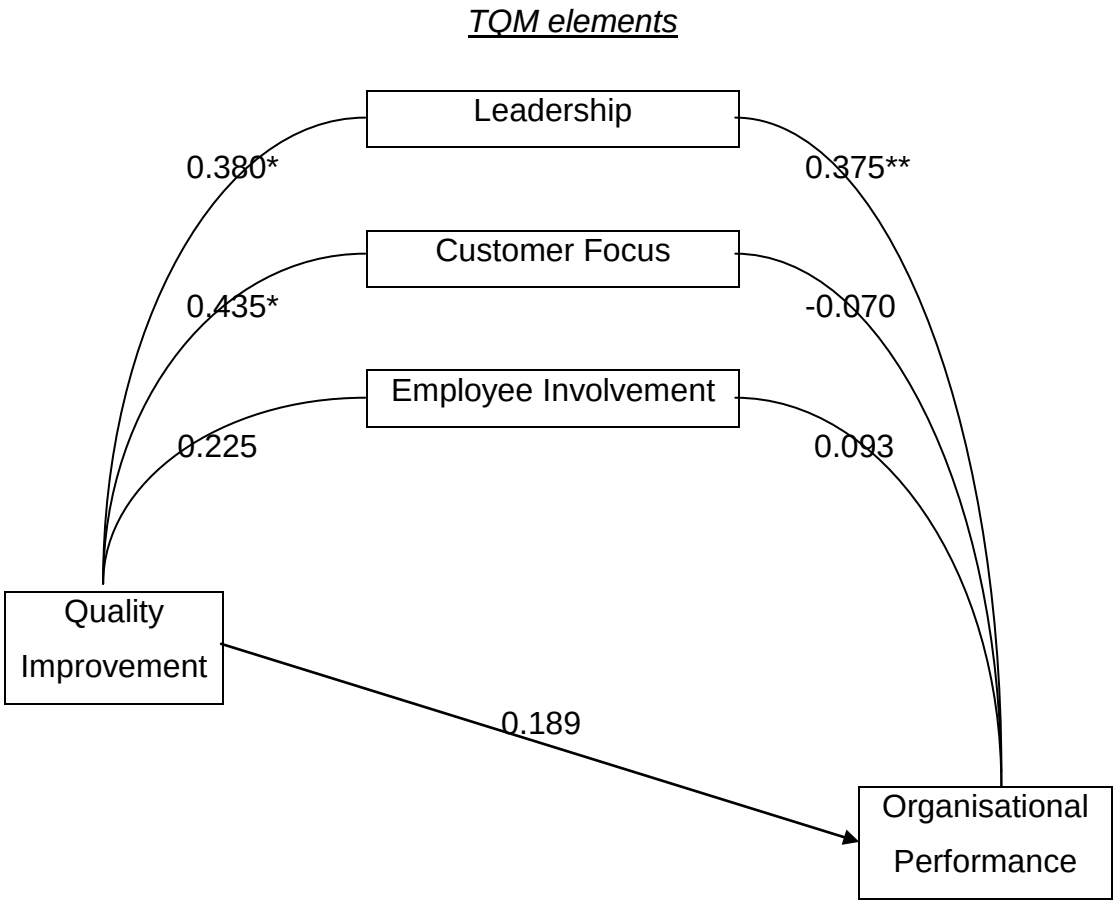
Multiple regression analysis was also used to determine the significant variables on Organisational Performance. The results of the regression analysis showed that only Leadership was statistically significant in explaining the variability in Organisational Performance.

5.2.3 Correlation analysis

In addition, correlation analysis was used to determine the relationship between Quality Improvement and Organisational Performance. The results indicate that Quality Improvement had a moderate positive effect on Organisational Performance.

In summary, the results suggest that the only TQM element that was significantly related to both Quality Improvement and Organisational Performance was Leadership. Customer Focus, on the other hand, had a significant positive relationship with Quality Improvement, and not with Organisational Performance. Although the results reflect that Leadership and Employee Involvement were positively related to Quality Improvement and Organisational Performance, the positive relationship between Employee Involvement and Organisational Performance was weak. The results also showed that Quality Improvement had a moderate positive effect on Organisational Performance. The relationship between the TQM elements and Quality Improvement and the relationship between the TQM elements and Organisational Performance, as determined in this study, is reflected in *Figure 5.1.*

Figure 5.1: The structural relationships and the correlation coefficients arising from this study



*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

5.3 RECOMMENDATIONS

5.3.1 Recommendations based on the results of this study

5.3.1.1 Leadership

The results of the study revealed that Leadership was significantly correlated to both Quality Improvement and Organisational Performance. This finding is supported by previous research findings. For example, Laksman (2006) was of the view that the quality of products and processes was determined by Leadership's commitment to quality. Sila and Ebrahimpour (2005), in their meta-analysis of surveyed-based research articles, also found that the key element in TQM implementation was a strong Leadership commitment to quality. In a study of the implementation of TQM elements in United States manufacturing organisations, Sila and Ebrahimpour (2005) found that Leadership had a direct effect on Organisational Performance.

In this study, all respondents (100%) agreed that Leadership provided adequate resources for improving quality and that Leadership made employees aware of the importance of customer satisfaction. However, a few respondents (3.1%) disagreed that Leadership had formulated quality goals and policies and that these goals and policies were communicated throughout the organisation. Also, a few respondents (3.1%) were uncertain about Leadership motivating employees to improve quality. A number of respondents (6.3%) were also uncertain regarding Leadership encouraging supplier involvement in the quality effort. This means that footwear manufacturing organisations must ensure that Leadership is committed to Quality Improvement and enhanced Organisational Performance by:

- Formulating quality goals and policies and communicating these goals and policies throughout the organisation;
- Motivating all employees to continuously improve the quality of products; and
- Encouraging the participation of suppliers in improving quality.

5.3.1.2 Customer Focus

In this study, Customer Focus was found to be significantly and positively related to Quality Improvement. The positive influence of Customer Focus on Quality Improvement was concurred with prior findings. For example, Ahire, et al. (1996), in their survey of manufacturing organisations in the United States, found that Customer Focus was a strong predictor of Organisational Performance through Quality Improvement. A similar result was obtained by Adebanjo and Kehoe (2001) when investigating the factors that affect teamwork and Customer Focus in TQM and non-TQM practicing organisations in the United Kingdom. They found that both types of organisations placed much emphasis on Customer Focus. Chin *et al.* (2003), in their study of the implementation of TQM elements in Hong Kong electronics and toy products organisations, found Customer Focus to be the key TQM element in both industries. Also, Arumugam *et al*. (2008), when exploring the relationship between TQM elements and Quality (Organisational) Performance in Malaysian ISO 9001:2000 certified organisations, found a positive relationship between Customer Focus and Quality (Organisational) Performance. Additionally, Customer Focus was recognised as the key element to Quality Improvement by quality gurus such as Deming, Juran, and Crosby. The Malcolm Baldrige Quality Award also assigned the highest weight to Customer Focus.

However, the results of this study indicated that there was no significant relationship between Customer Focus and Organisational Performance. This is contrary to the findings of previous research. For example, Cai (2009), in examining the implementation of Customer Focus in Chinese manufacturing organisations, found that Organisational Performance and customer satisfaction were influenced by Customer Focus. Similarly, Nwokah and Maclayton (2006), in assessing the impact of Customer Focus on Organisational Performance in Nigerian food and beverage organisations, found that Customer Focus contributed to Organisational Performance. Hence, Customer Focus leads to better understanding of the current and

future needs and expectations of customers which in turn can be translated into Quality Improvement.

Although all respondents in this study (100%) agreed that their organisations were aware of the current requirements of their customers, some respondents (12.5%) neither agreed nor disagreed that their organisations were aware of the future requirements of their customers. Also, a few respondents (6.3%) were uncertain about customer satisfaction being the ultimate aim of their organisations. However, a number of respondents (15.7%) were uncertain or disagreed that customers were encouraged to provide feedback on quality related issues. A number of respondents (18.8%) were also uncertain or disagreed that customer input was required on new product design. In addition, a large number of respondents (43.8%) were uncertain or disagreed that their organisation had established a communication channel for customer queries. This means that footwear manufacturing organisations can enhance Organisational Performance by:

- Being aware of the future needs and expectations of customers;
- Ensuring that customer satisfaction is the ultimate aim of the organisation;
- Encouraging customers to provide feedback on quality related issues;
- Obtaining customer input on product design; and
- Establishing channels of communication through which customers can seek assistance, obtain information, and make complaints.

5.3.1.3 Employee Involvement

Conversely, Employee Involvement was reported to have no significant influence on Quality Improvement and Organisational Performance. This negative result could be due to the fact that the surveyed organisations did very little in empowering their employees and utilising their knowledge and experience. Also, this result is contrary to previous research findings. For example, Yang (2006) undertook a study of Employee Involvement in Taiwanese high-tech organisations. His findings showed that education and

training, development, and compensation exerted the greatest influence on TQM. Dimba (2010), in her study of large foreign multi-national organisations in Kenya, also found training and development, and compensation to be the best predictors of Organisational Performance. On the other hand, Ooi *et al.* (2007), in their examination of employees' perception of TQM in Malayasian semiconductor and test organisations, identified teamwork as the dominant TQM element.

Although all respondents in this study (100%) agreed that employees were empowered to continuously improve their output, a few respondents (3.1%) disagreed that employees worked in teams. The same number of respondents disagreed that employees were encouraged to give suggestions and that these suggestions were objectively evaluated. A number of respondents (15.6%) were uncertain or disagreed that sufficient resources were available for employee training in quality. A number of respondents (12.5%) were uncertain about employees being fully trained for the work they perform. In order to involve employees in Quality Improvement and enhance Organisational Performance, footwear manufacturing organisations need to:

- Design work systems such that it fosters teamwork;
- Train employees to improve their skills by providing adequate resources for the training and development of employees;
- Improve employee relations by recognising the contributions of employees to the quality effort; and
- Communicate to all employees within the organisation that their ideas on quality will be objectively evaluated.

5.3.1.4 Quality Improvement

The correlation analysis undertaken in this study indicates a moderate positive relationship between Quality Improvement and Organisational Performance. This relationship is supported by quality gurus who espoused the contribution of Quality Improvement to Organisational Performance. Further, Poksinska *et al*. (2010), in exploring the state of quality improvement

activities in Swedish service and manufacturing organisations, showed that the Quality Improvement was influenced by the economical aspects of Organisational Performance. Abdullah *et al*. (2008), in investigating the influence of TQM elements on Quality Improvement and Organisational Performance in Malaysian electric and electronic organisations, also concluded that Organisational Performance increased through Quality Improvement.

In this study, a few respondents (3.2%) were uncertain as to whether the number of defective products produced had been reduced. A number of respondents (19.3%) were uncertain or disagreed that the production of obsolete products has been eliminated. However, a larger number of respondents (25.8%) were uncertain or disagreed that there was a reduction in non-conformance to product specifications, rework/reprocessing, and warranty compensations. Based on these responses, it becomes necessary for footwear manufacturing organisations to implement measures to:

- Reduce the number of defective final products being manufactured;
- Eliminate the production of obsolete products;
- Ensure that products are manufactured to specifications;
- Reduce reworking on or reprocessing of final products; and
- Reduce warranty compensations on returns by producing non-defective products.

5.3.1.5 Organisational Performance

Organisational Performance was measured in terms of customer satisfaction. This study revealed that all the respondents (100%) were of the view that customers were retained and loyal to the organisation. However, a few respondents (3.2%) disagreed that the number of customer complaints had deceased. A similar number of respondents were uncertain about customers being satisfied with the organisation's product and service. A larger number of respondents (16.2%) were uncertain or disagreed that customers' evaluation of the organisation's performance had improved or that goods were

delivered timeously to customers. This means that footwear manufacturing organisations, in order to enhance Organisational Performance through customer satisfaction, should:

- Attempt to reduce the number of customer complaints;
- Ensure that customers are satisfied with the organisation's product and service;
- Improve the performance of their organisations in satisfying the needs and expectations of customers; and
- Ensure that products are delivered timeously to customers.

5.3.2 Recommendations for future research

Further research may be carried out in a number of directions, as indicated below.

- Since the respondents in this study were from the manufacturing sector, the conclusions are especially valid for the manufacturing industry. A similar study might be undertaken by making a comparison between manufacturing and service organisations in terms of the impact of TQM on Quality Improvement and Organisational Performance.
- Future research may collect data from all footwear manufacturing organisations in order to have a more comprehensive study of the entire footwear manufacturing organisations in South Africa.
- This study may be replicated in the public sector which would provide further validation and reinforcement to the research model proposed in this study.
- The TQM elements considered in this study were Leadership, Employee Involvement, and Customer Focus. Future studies could consider including more TQM elements and dimensions. This might further enhance the reliability levels of the recommended TQM elements and dimensions.

- To avoid the risk of receiving biased responses, it is suggested that future research should focus on a research framework that will consider the opinions held not only by top managers but also by employees.

5.4 ACHIEVEMENT OF AIMS AND OBJECTIVES

The aim of this study was to understand and measure the impact of TQM elements on Quality Improvement and Organisational Performance which was measured through customer satisfaction. By accomplishing the aim, it was hoped that footwear manufacturing organisations in the eThekwini region of Kwazulu-Natal would improve product quality and, hence satisfy the needs of their customers. Three main objectives were developed to achieve the aim of this study.

The first objective was to develop a framework indicating the relationship between the TQM elements of Leadership, Employee Involvement, and Customer Focus on Quality Improvement and on Organisational Performance, as well as the relationship between Quality Improvement and Organisational Performance. The results of the study showed that Leadership and Customer Focus were positively correlated with Quality Improvement. No significant relationship was found between Employee Involvement and Quality Improvement. The results also indicated a positive correlation between Leadership and Organisational Performance. However, no significant relationship was found between Employee Involvement and Organisational Performance. Also, Customer Focus and Organisational Performance reported no significant relationship. The results are summarised in *Figure 5.1* in this Chapter. Based on the results, it can be concluded that the first objective was partially achieved.

The second objective was to conduct a pilot study to verify the reliability of the measuring instrument. A questionnaire was addressed to quality managers in selected footwear manufacturing organisations. Although Cronbach's alpha coefficients for Customer Focus and Organisational Performance in the pilot

study were below the threshold of 0.70, the overall coefficient of 0,814 shows that the reliability of the questionnaire was acceptable. Hence, the second objective was achieved.

The third objective was to survey a sample of footwear manufacturing organisations regarding their responses on the role of TQM elements in improving quality and enhancing Organisational Performance. This objective was also achieved through a convenience sample of 32 footwear manufacturing organisations.

5.5 SIGNIFICANCE OF THE STUDY

The significance of this study is that it provides a greater insight into the use of TQM elements to effectively improve the quality of products in footwear manufacturing organisations. These organisations can then prepare all its employees for the changes in quality management that will benefit all stakeholders. By using the proposed research framework, the organisation would be able to determine the extent to which changes in Quality Improvement and Organisational Performance can be attributed to the identified TQM elements. This provides guidelines for the organisation to take appropriate steps to improve the organisation's existing quality management system. Concentrating on these guidelines will improve quality and enhance Organisational Performance through customer satisfaction.

Further, the data collected from the study will also empirically show the relationships between the constructs incorporated in the study in an attempt to generate a better and sound theoretical framework within which to understand more about the relationship between the TQM elements, Quality Improvement and Organisational Performance. Hence, the findings from this study are also relevant to the theory of quality management since it indicates the importance of TQM elements in implementing an effective quality management system.

5.6 LIMITATIONS

This study is subject to some limitations, as listed below.

- Data constitute subjective business evidence that came from quality managers, a fact that entails the risk of receiving biased answers;
- The sample in the study was restricted to footwear manufacturing organisations in the eThekwini region of Kwazulu-Natal; and
- Several TQM elements may not have been considered in this study.

5.7 CONCLUSION

In conclusion, this study examined the role of TQM in improving quality and enhancing Organisation Performance in footwear manufacturing organisations in Kwazulu-Natal. The TQM elements of Leadership and Customer Focus were found to have a significant influence on Quality Improvement. However, it was found that Leadership was the only TQM element that had a significant influence on Organisational Performance. Finally, Quality Improvement was reported to be positively related to Organisational Performance.

This study has provided evidence that some TQM elements have a significant positive effect on overall Quality Improvement and Organisational Performance. In response to *H1*, Leadership and Customer Focus were found to have a strong association with Quality Improvement. In response to *H2*, Leadership was reported to be positively related to Organisational Performance. Finally, in response to *H3*, the findings indicate that Quality Improvement was positively related to Organisational Performance.

These findings are also relevant to quality management theory because it shows the importance of TQM elements to effective quality management implementation and to Organisational Performance.

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ANNEXURES

ANNEXURE 1

COVERING LETTER TO QUESTIONNAIRE

Date: …….

.....

.....

.....

Dear Sir/Madam

Research Questionnaire

I am currently registered for the Masters in Technology: Quality at the Durban University of Technology. My research topic is "THE ROLE OF TOTAL QUALITY MANAGEMENT (TQM) IN IMPROVING QUALITY AND ORGANISATIONAL PERFORMANCE IN THE FOOTWEAR INDUSTRY IN KWAZULU-NATAL".

I humbly appeal to you for your co-operation in this research study. I would appreciate it very much if you would kindly complete the attached questionnaire. The questionnaire would take approximately twenty minutes to complete. I will be available to clarify any problems that you may experience whilst completing the questionnaire. You may request a summary of the results of the study, if so desired.

Confidentiality of the information will be respected.

Thank you for your co-operation.

Yours sincerely

.....
Ash Inderlal
Tel: 031-373 5288
Cell: 071 434 6600

I consent to participate in this study.

....
Signature of participant Date

ANNEXURE 2

RESEARCH QUESTIONNAIRE

SECTION A

DEMOGRAPHIC INFORMATION

Name of company	
Location	

Please complete the following information by ticking the appropriate box;

1. ***Your position in the company***

Supervisor	
Manager	
Senior manager	
Other (please specify)	

2. ***Number of years of experience in the quality field:***

up to 5 years	
6 - 10	
more than 10 years	

3. ***Age Group (in years)***

under 25	
25 - 29	
30 - 35	
over 35	

4. ***Gender***

Male	
Female	

SECTION B

For each of the following statements, please indicate your level of agreement by ticking the box that is most appropriate.

LEADERSHIP	Strongly Disagree (1)	Disagree (2)	Uncertain (3)	Agree (4)	Strongly Agree (5)
Quality goals and policies have been clearly formulated by leadership					
Leadership communicates quality goals and policies throughout the organisation					
Leadership allocates adequate resources towards efforts to improve quality of products and processes					
Leadership makes employees aware of the importance of customer satisfaction					
Leadership motivates all employees to continuously improve the quality of products and processes					
Leadership encourages the participation of suppliers in tackling quality issues					

EMPLOYEE INVOLVEMENT	Strongly Disagree (1)	Disagree (2)	Uncertain (3)	Agree (4)	Strongly Agree (5)
Employees are empowered to continuously improve work output					
Employees work in teams					
Sufficient resources are available for training of employees in quality					
Employees are fully trained for the work they perform					
Employees are encouraged to give Suggestions					
Employees' suggestions are objectively evaluated					

CUSTOMER FOCUS	Strongly Disagree (1)	Disagree (2)	Uncertain (3)	Agree (4)	Strongly Agree (5)
The organisation is aware of customers' current requirements					
The organisation is aware of customers' future expectations					
Customer satisfaction is the ultimate aim of the company					
Customers are encouraged to provide feedback on quality related issues					
Customers help design new products/ processes					
The organisation has established a communication channel through which customers can seek help, obtain information, and make complaints					

QUALITY IMPROVEMENT	Strongly Disagree (1)	Disagree (2)	Uncertain (3)	Agree (4)	Strongly Agree (5)
Defective end products have been Reduced					
Obsolete products have been Eliminated					
Non-conformance to specifications have been reduced					
Rework/reprocessing has been Reduced					
Warranty compensations on returns have been reduced					

ORGANISATIONAL PERFORMANCE	Strongly Disagree (1)	Disagree (2)	Uncertain (3)	Agree (4)	Strongly Agree (5)
The number of customer complaints has decreased					
Customers are satisfied with the organisations product and service					
Customers are retained and are loyal to the organisation					
Customer evaluation of the organisation's performance has improved					
Goods are delivered timeously to Customers					

Your time and effort in completing this research questionnaire is much appreciated. Many thanks.