



**MTech: Philosophy in Quality Management**

**The Impact of ISO9000 Certification on Organizational  
Performances in Gauteng**

**DURBAN UNIVERISTY OF TECHNOLOGY**

**The Impact of ISO9000 Certification on Organizational Performances in Gauteng**

This work is submitted in fulfilment of the requirements for the degree of Master of Philosophy  
in Quality Management at the Durban University of Technology

**By**

**Chrissal Vadivalu**

**21024115**

**Month and Year of submission: September 2020**

**Supervisor:**

**Dr. Bibi Zaheenah Chummun**

Date of supervisors' approval for exam submission: 13 September 2020

## **ABSTRACT**

ISO9000 as a concept has mostly been associated with the functional role of quality management. The concept from a theoretical point of view has been studied. Although, there is a lack of a theoretical foundation and research on the actual role of ISO9000 and its effectiveness on operational and business performance. Despite the numerous studies on the effectiveness and impact of ISO9000 standard in companies, researchers have still not come to an agreement on the standards benefits. It is therefore important to undertake an investigation in order to determine how ISO9000 affects the organizational performance in companies based in Gauteng. The aim of the study was to investigate the effectiveness of ISO9000 on organizational performance.

A concept analysis was made which combines theoretical and analytical phases. The Statistical Package of Social Science (SPSS) data analysis was used to conduct the statistical tests. The population count used in the study was from 172 ISO9000 certified companies registered on SANAS, ALPHA and SABS in Gauteng. Random sampling was used to conduct the research in 102 companies. The empirical data was collected from questionnaire surveys which were sent to 102 ISO9000 certified companies in Gauteng and answered by top management who were responsible for quality in their organizations.

The results has revealed that there is a statistically significant improvement that is related to the ISO9000 dimensions. Like other research the present study has limitations. The sample of the responding ISO9000 certified companies is limited to Gauteng, moreover the responses could be subjected to bias as it is a representative of one person in the company. Furthermore the statistics were not compared to noncertified companies as this study was not a comparative study. The above limitations suggest future research recommendations.

Some of the recommendations that should be considered for future studies are the number of participating certified companies - a comparative study would be beneficial. Based on the core issue of inconsistencies in the conclusions of ISO9000 Effectiveness research articles, the present study provides a comprehensive favorable impact that ISO9000 certification has on both operational and business performance.

## **DECLARATION**

I declare that this dissertation is my own, unaided work. It is being submitted for the Degree of Master of Philosophy in Quality Management, to the Durban University of Technology. It has not been submitted before for any degree or examination to any other University.

C Vadivalu

**\* FINAL COPY APPROVED FOR SUBMISSION**

\_\_\_\_\_

Dr. Chummun

\_\_\_\_\_

Date

13 September 2020

## **DEDICATION**

I would like to dedicate this research to my wonderful parents Cynthia and Vinothan Vadivalu.

## **ACKNOWLEDGEMENTS**

I wish to express my sincere appreciation and gratitude to the following individuals, without whose assistance this study would not have been possible:

Firstly, I would like to thank God for being with us all the time during the investigation of this work, without whom nothing is possible.

My supervisor Dr. Chummun for her knowledge transfer, guidance and support for this thesis.

My family and Husband Lithesh Jabraj for their love and support.

My respondents, whose feedback made this research a success.

# TABLE OF CONTENTS

ABSTRACT .....	iii
DECLARATION.....	iv
DEDICATION .....	v
ACKNOWLEDGEMENTS .....	vi
TABLE OF CONTENTS .....	vii
LIST OF TABLES .....	xii
LIST OF FIGURES .....	xiii
CHAPTER 1 .....	1
INTRODUCTION .....	1
1.1 Introduction and Background of Study.....	1
1.2 Problem Statement.....	2
1.3 Aim of Study.....	2
1.4 Research Objectives.....	3
1.5 Research Questions.....	3
1.6 Significance of the Study .....	3
1.7 Chapter Summary .....	3
CHAPTER 2.....	5
LITERATURE REVIEW .....	5
2.1 Introduction.....	5
2.2 The ISO9000.....	5
2.3 ISO9000 and organizational performance .....	5
2.4 The role of ISO9000 in an organization .....	7
2.5 Controversial views about ISO9000 .....	9
2.6 Relationship between ISO9000 and organizational performance.....	10
2.7 Challenges of ISO9000.....	10
2.8 Chapter summary.....	11

CHAPTER 3.....	12
RESEARCH DESIGN AND METHODOLOGY.....	12
3.1 Introduction.....	12
3.2 Research philosophy.....	12
3.4 Research Approach.....	12
3.5 Research Design.....	13
3.5 Target Population and Sampling.....	13
3.5.1 Target Population.....	13
3.5.2. Kind of sampling.....	13
3.5.3 Sample Size.....	13
3.6 The Research Instrument.....	14
3.7 Data Collection.....	14
3.8 Pilot Study.....	14
3.9 Reliability of study.....	14
3.10 Validity of study.....	15
3.11 Data Analysis.....	15
3.12 Bias.....	15
3.13 Ethical Considerations.....	15
3.13.1 Permission to conduct the study.....	15
3.13.2 Informed Consent.....	15
3.13.3 Confidentiality and Anonymity.....	16
3.14 Chapter Summary.....	16
CHAPTER 4.....	17
RESULTS.....	17
4.1 Introduction.....	17
4.4 Demographic data analysis.....	17
4.4.1 Gender of participants.....	17



4.4.2 Role of participants .....	18
4.4.3 Type of organization .....	18
4.4.4 Duration of ISO9000 certification .....	19
4.4.5 Reduction in product/service costs after certification .....	20
4.4.6 Return on goods/services after certification.....	21
4.4.7 Level of agreement on operational efficiency and productivity after certification .....	22
4.4.8 Level of agreement on operational efficiency and productivity after certification .....	23
4.4.9 Level of agreement on operational efficiency and productivity after certification .....	24
4.4.10 Level of agreement on operational efficiency and productivity after certification .....	25
4.4.11 Percentage of the reduction in customer complaints.....	26
4.4.12 The level of agreement on the retaining rate of existing customers .....	27
4.4.13 Process standardization and systemization improvement level of agreement	28
4.4.14 Level of agreement on the improvement of internal transfer performance ...	29
4.4.15 Level of agreement on the increase in teamwork efficiency.....	30
4.4.16 Level of agreement on the enhancement of operating efficiency after certification .....	31
4.4.17 Level of agreement on the improvement of employee morale and cohesiveness after certification .....	32
4.4.18 Level of agreement on the improvement of the employees' ability to solve problems after certification .....	33
4.4.19 Level of agreement on the improvement of employee's service attitude after certification .....	34
4.4.20 Level of agreement on the improvement of enhanced market share after certification .....	35

4.4.21 The level of agreement on the improvement of market share or new products after certification .....	36
4.4.22. The improvement level of effectively promoting corporate culture in organizations .....	37
4.4.23 Level of agreement on corporate goal and social needs compliance .....	38
4.4.24 The level of agreement to fast modify product design is enhanced after certification .....	39
4.4.25 Improvement in new product development after certification .....	40
4.4.26 Improvement in price competition of products after certification .....	41
4.4.27 The level of agreement on the organization effectively promoting corporate reputation and image .....	42
4.4.28 Enhancement of sales growth after certification .....	43
4.4.29 Increase in profitability after certification.....	44
4.4.30 Level of agreement on the increase of purchase after certification .....	45
4.4 Scoring analysis of operational performance and business performance after ISO9000 certification.....	46
4.7 Statistical Chi Square Test.....	47
4.8 Cross tabulations.....	49
4.9 Correlations and relationships between variables.....	54
4.7 Chapter summary.....	55
CHAPTER 5.....	56
DISCUSSIONS .....	56
5.1 Introduction.....	56
5.2 Demographic.....	56
5.3 Evaluation of ISO9000 certification effect on organization and business performance .....	56
5.4 Relationships between the variables .....	58
5.5 Chapter Summary .....	60
CHAPTER 6.....	61

CONCLUSIONS AND RECOMMENDATIONS .....	61
6.1 Introduction.....	61
6.2 Conclusion .....	61
6.3 Implications of this research .....	61
6.4 Limitations of the Study .....	61
6.5 Recommendations for future studies .....	62
6.6 Chapter summary .....	63
REFERENCES .....	64
APPENDIX 1 .....	71
LETTER OF INTRODUCTION .....	71
APPENDIX 2 .....	73
LETTER OF INFORMED CONSENT .....	73
APPENDIX 3 .....	76
ETHICAL CLEARANCE APPROVAL.....	76
APPENDIX 4 .....	78
GATEKEEPERS PERMISSION .....	78
APPENDIX 5 .....	79
QUESTIONNAIRE USED TO CONDUCT THE RESEARCH .....	79

## LIST OF TABLES

Table 2. 1 Company performance measures .....	7
Table 2. 2 Internal and external benefits associated with ISO9000 certification.....	8
Table 4. 1 Chi-square test on the operational and business performance from respondents .....	47
Table 4. 2 Cross tabulations and Fishers Exact test on the operational and business performance from respondents .....	49

## LIST OF FIGURES

Figure 2. 1 Conceptual framework .....	6
Figure 4. 1 Title of respondents.....	17
Figure 4. 2 Designation of respondents (Q2). .....	18
Figure 4. 3 Different organization types (Q3) .....	18
Figure 4. 4 Duration of ISO9000 certification in organizations (Q4) .....	19
Figure 4. 5 Reduction in product/service costs after certification (CR1).....	20
Figure 4. 6 Agreement level on the variable goods/services is reduced (CR2). .....	21
Figure 4. 7 Level of agreement on operational efficiency and productivity after certification (P3). .....	22
Figure 4. 8 Level of agreement on the improvement in product quality after certification. ....	23
Figure 4. 9 Agreement level of reduction in production/service variation and defects after ISO9000 certification. ....	24
Figure 4. 10 Level of agreement on the improvement of customer satisfaction. ....	25
Figure 4. 11 Percentage of the reduction in customer complaints. ....	26
Figure 4. 12 The level of agreement on the retaining rate of existing customers. ....	27
Figure 4. 13 Process standardization and systemization improvement level of agreement. ....	28
Figure 4. 14 Level of agreement on the improvement of internal transfer performance. ....	29
Figure 4. 15 Level of agreement on the increase in teamwork efficiency .....	30
Figure 4. 16 Level of agreement on the enhancement of operating efficiency after certification.....	31
Figure 4. 17 Level of agreement on the improvement of employee morale and cohesiveness after certification .....	32
Figure 4. 18 Level of agreement on the improvement of the employees' ability to solve problems after certification.....	33
Figure 4. 19 Level of agreement on the improvement of employee's service attitude after certification.....	34
Figure 4. 20 Level of agreement on the improvement of enhanced market share after certification.....	35

Figure 4. 21 The level of agreement on the improvement of market share or new products after certification. ....	36
Figure 4. 22 The improvement level of effectively promoting corporate culture in organizations.....	37
Figure 4. 23 Level of agreement on corporate goal and social needs compliance. ....	38
Figure 4. 24 The level of agreement to fast modify product design is enhanced after certification.....	39
Figure 4. 25 Improvement in new product development after certification.....	40
Figure 4. 26 Improvement in price competition of products after certification. ....	41
Figure 4. 27 The level of agreement on the organization effectively promoting corporate reputation and image. ....	42
Figure 4. 28 Enhancement of sales growth after certification.....	43
Figure 4. 29 Increase in profitability after certification. ....	44
Figure 4. 30 Level of agreement on the increase of purchase after certification. ....	45
Figure 4. 31 Scoring patterns of operational performance after ISO9000 certification ...	46
Figure 4. 32 Summary of scoring patterns of business performance after ISO9000 certification.....	46

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction and Background of Study

The ISO9000 proposed by ISO (International Organization for Standardization) was first published in 1987 based on BS 5750 series of standards from BSI. Since the inception of ISO9000, over a million of organizations has been ISO9000 certified worldwide. The ISO9000 is a quality assurance standard which provides well-documented procedures to follow in providing goods and services for quality management system implementation and operation in an organization (Ilkay and Aslan, 2012). This procedure guarantees goods and services are up to the required standard and satisfaction of the customer. However, this does not guarantee the quality of the product, thus makes it a global concern (Judi et al., 2011; Wayhan et al., 2002).

Competition became intense for better products and services in the business environment which is unstable with turbulence and uncertainties. This leads to globalization and escalating demands of world trade and industries facing extraordinary pressures of competition. Hence, organizations and industries strive to be competitive and thrive in the global marketplace (Kaplan, 2003). Organizations are shifting towards three key competitive areas: quality, cost and responsiveness. Many South African organizations joined in this global trend in an effort to remain globally competitive. Lately, many organisations no longer held certification to this standard in high regard, as most have started to feel the effect of the high implementation, processing and maintenance costs of ISO9000 certification (Ramdass and Nemavhola, 2018). Hence, there is a need to find out if this could affect the performances of these organizations in a competitive market in South Africa.

Although, the controversy surrounding the benefits of ISO9000 certification and its effects on business performance in an organization still remains (Ilkay and Aslan, 2012). Previous reports showed that most organizations still criticize ISO certification process as ineffective. Some organization belongs to a school of thought that certification improves performance while another believes otherwise (Sampaio, Saraiva, and Rodrigues, 2011; Ilkay and Aslan, 2012).

The application of international standards was mentioned to have beneficial impact on managers, product/service providers, customers and regulators (Kazilunas, 2010). The ISO9000 quality management system standard has been developed to assist any type of organization regardless of size, sector or activity (ISO, 2016). As a result, its relevance to a variety of groups and organizations has become attractive. Although ISO9000 is widely used, the certification process is not an easy one for most organizations. The documentation, application and implementation can be costly and time consuming which often takes more than one year. Companies incur costs for training and because of the substantial investment required, implementing ISO 9000 for many firms is not a decision to be taken lightly.

This study established that there are growing concerns of ISO9000 certification quality management in the nation, yet there is a need to address issues like high implementation, processing and maintenance costs of the certification in South Africa. This present study therefore investigated into the impact of ISO9000 certification on performances in Gauteng.

### **1.2 Problem Statement**

The subject that ISO9000 certification affects performance positively or negatively remains a bone of contention. ISO9000 implementation is still a slow, costly and tedious process which takes a year or more to implement the ISO9000 quality management system. The cost is estimated to be over ZAR 100,000 provided it was done within specific time frame. The impact of ISO9000 certification and implementation affects people and their attitude in the organization. With diversity being a challenge in the South African context, management commitment to labour buy-in is paramount in order to achieve the desired outcomes of the ISO9000 quality system (Ramdass and Nemavhola, 2018). Lack of studies on ISO9000 certification in South Africa further aggravates the trouble of addressing this issue most especially the benefits of certification and its renewal to an organization. With a focus on Gauteng, this study therefore investigated the challenges affecting the effectiveness of ISO9000 certification and its impact on organizational performances in South Africa.

### **1.3 Aim of Study**

The aim of this study was to determine the impact of ISO9000 certification on organizational performances within Gauteng by employing quantitative methodology



taking into consideration the factors, implications and solutions to address the impact using Gauteng as the case study.

#### **1.4 Research Objectives**

Primary objective:

1. To investigate the effect of ISO9000 on organizational performance in Gauteng.

Secondary objectives:

1. To determine the role and importance of ISO9000 certification in Gauteng.
2. To identify the impact of ISO9000 on organizational performance in Gauteng.
3. To determine the challenges posed by ISO9000 on organizational performance in Gauteng.
4. To provide recommendations on how to minimize the challenges associated with ISO9000 on organizational performance in Gauteng.

#### **1.5 Research Questions**

1. What are the roles and importance of ISO9000 certification in Gauteng?
2. What are the impacts of ISO9000 on organizational performance in Gauteng?
3. What are the challenges posed by ISO9000 on organizational performance in Gauteng?
4. What could be the recommendations to address the challenges associated with ISO9000 on organizational performance in Gauteng?

#### **1.6 Significance of the Study**

The research findings in this study will help the local, provincial and national governments of South Africa to address the challenges affecting the effectiveness of ISO9000 on operational performance, if it is relevant to gain certification or renewal. This study will expand and contribute to existing literature by bringing clarity to the contradictory literature that exists on the effectiveness of ISO9000 certification.

#### **1.7 Chapter Summary**

This chapter has presented a brief introduction and background to this study on the effect of ISO9000 certification on organizational performance, the research gap and problem on

the existing controversy about the impact of ISO9000 certification quality management on organization. The research objectives and questions were outlined which leads to the significance of this study. The next chapter discussed in detail previous literature on ISO9000 certification and its effect on the performance of organization.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The ISO9000 series was introduced in 1987. For more than 20 years and across the globe, ISO9000 management system has been adopted with over one million certificates being issued by 2016. Despite numerous studies on ISO9000 and the increasing number of certified companies around the world, the effect of ISO9000 with regards to quality system in companies still remain a debate.

#### **2.2 The ISO9000**

The ISO9000 is a series of standards and procedures developed in Geneva in 1987 by the International Organization for Standardization. The ISO9000 system was developed for the amplification of the basic quality management systems of different organizations (ISO, 2016). The International ISO standards ensure safe, reliable and good quality products and services. The international ISO standard is used as a strategic tool for minimizing costs by reducing waste and errors and increasing business productivity. It helps companies enter new markets, helps developed countries level the playing field and promotes free and equal world trade (ISO, 2016).

Francis Buttle (1997) wrote, "The standards specify how management operations shall be conducted. ISO9000's purpose is to ensure that suppliers design, create, and deliver products and services which meet predetermined standards; in other words, its goal is to prevent non-conformity". The organization's operating practices and processes from start to finish from the design stage to after the sales have to be streamlined with the introduction of a quality system (Kaziliūnas, 2010). The quality management system focuses more on quality performance with more time spent creating suitable goods and less time spent doing the job, waste and scarp, both of which improve.

#### **2.3 ISO9000 and organizational performance**

Organizational performance can be broken down into two subcategories namely; operational performance and business performance as shown in Figure 2.1. Operational performance relates to the cost, productivity, quality improvements, customer satisfaction, internal procedures and employee morale. Business performance relates to market share, increase in the corporate image, competitive advantage and organizational profits (Psomas and Pantouvakis, 2014; Psomas et al., 2013). There are 3 important competitive and

performance areas that organizations are striving and moving towards namely; cost, quality and responsiveness. Quality is a universal value and has become a global concern (Judi et al., 2011). A system is required to be in place to ensure the delivery of improved quality goods and services. A continuous upgrade under changing conditions should remain consistent with quality. ISO9000 quality management standard is the most commonly used method for adapting and implementing such a system (Ilkay and Aslan, 2012).

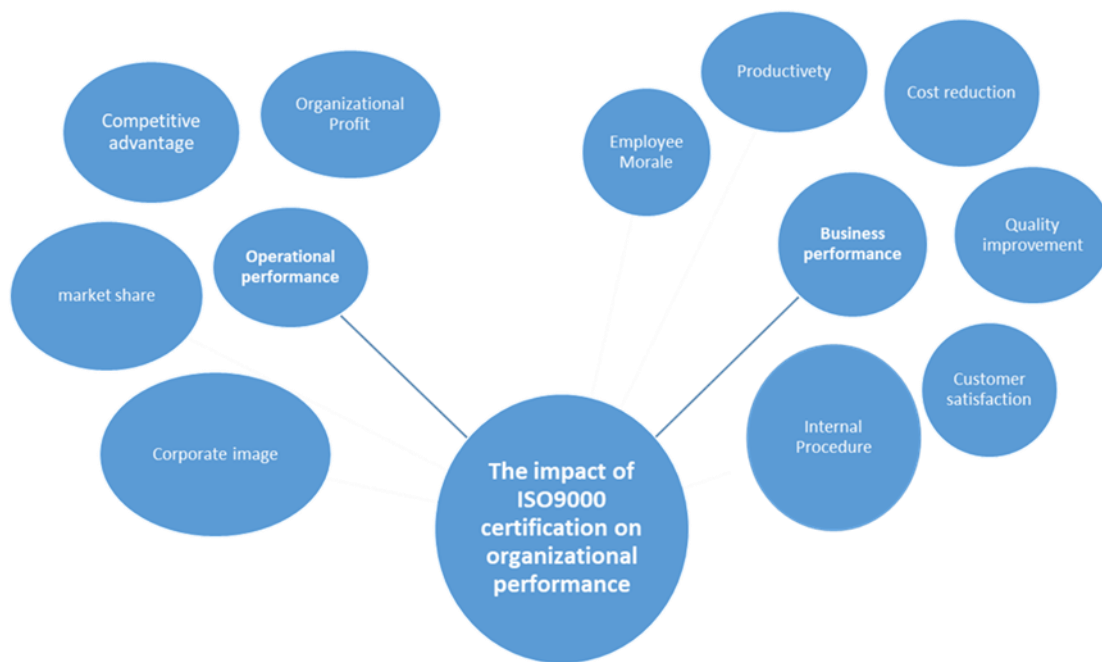


Figure 2. 1 Conceptual framework

Nair and Prajogo (2009) suggested that internalization of ISO9000 standards is associated with functionalist drivers which influences the internalization of ISO 9000. Maani, et al., (1994) has mentioned that the improvement of quality performance will have a beneficial impact on operational performance e.g. production cost, on-time delivery, lead time and productivity. This will therefore result positively and significantly affect the business performance: e.g. sales volume, market share. Despite the reputation of ISO9000 quality management system, its effects on organizational performance still comes under much criticism. However, the performances can be measured based on some factors as shown in Table 2.1.

Table 2. 1 Company performance measures

<b>Performances</b>	<b>Measures</b>
Product Quality	Product quality performance
	Product conformity to specifications
	Consistent and reliable products
Operational	Company productivity
	Company efficiency
	Process effectiveness
Customer satisfaction	After-sales Customer Satisfaction
	Customer fulfilment from product features
	Customer loyalty
Market performance	In-market business portrait
	Market share
	Stepping into new markets
Financial performance	Performance in revenue
	Net profit
	Cash flow from operations

Adapted from Psomas, and Kafetzopoulos (2014)

#### **2.4 The role of ISO9000 in an organization**

Over the years, the understanding of the ISO9000 standard has improved likewise the focus of the organization's concept of the standard. In recent studies, the focus has been moved from the understanding of the ISO standard benefits and the internalization process related to the operational and business performance factors (Naveh and Marcus 2004). ISO9000 standards deliver a set of generic user guides and recommendations that can possibly result in an enhanced process which are aimed at internal process improvement. These internal motives for the adoption of ISO9000 certification are regarded as functional drivers (Nair

and Prajogo, 2009). Internalization of the ISO9000 standards refers to the adoption of the standards practices modifying behaviour and decision making. Lasting improvement of internalization of the quality management standard requires that it is practiced daily (Briscoe et al., 2005). Internalization of ISO 9000 recommendations fulfil aspects such as training of staff, applying the ISO9000 practices for the basis of continuous improvement, organization-wide communication of blueprint and sizeable documentation of processes (Nair and Prajogo, 2009).

Table 2. 2 Internal and external benefits associated with ISO9000 certification.

S/N	Benefits of ISO9000	
	External	Internal
1.	Access to new markets	Productivity improvement
2.	Corporate image improvements	Product defect rate increases
3.	Market share improvements	Quality awareness improvements
4.	ISO9000 certification as a marketing tool	Definition of the personal responsibilities and obligations
5.	Customer relationship improvements	Delivery times improvements
6.	Customer satisfaction	Internal organization improvements
7.	Customer communication improvements	Nonconformities decreases

Adopted from Sampaio et al., (2011)

According to Sampaio et al., (2011), there is a consensual estimation that company certification motivations are related to the ISO9000 benefits. Those that want to attain certification for internal benefits achieve improved profits due to increased enhancements in quality systems and achieving external benefits. Companies that are interested in

achieving ISO9000 certification mainly for better external benefits may only then achieve paybacks of an external nature.

## **2.5 Controversial views about ISO9000**

Many authors have claimed that certification has improved business performance while others claim there is no significant change (Terziovski et al., 1997; Rahman, 2001; Lima et al., 2000). In other words, some authors conclude that ISO9000 has advantages and improved performance while others claim that there is no significant change. Elmuti (1996), claimed that the ISO standard increases productivity, product quality and gives competitive advantage that can lead to better market share. Kazilunas (2010) mentioned that global certification gives confidence and makes global markets easier to enter. Chummun (2019) also said that businesses should ensure that they are following the national legislation not only to comply with activities ethically but to also ensure a competitive advantage as customers want to deal with businesses which are actively complying with the standards.

Sharma (2005) said it increases earnings per share in financial markets, improves sales growth and profit margins. Nicolao and Sellers (2003) and Corbett et al. (2005) said it increases business performance. Marin and Ruiz-Olalla (2011) concluded that certified companies had better quality and operative result as opposed to non-certified organizations. Psomas and Pantouvakis (2015) and Psomas and Kafetzopoulos (2014) concluded that ISO9000 quality management system improves operational, financial and market results. Psomas et al., (2013) said that ISO9000 usefulness directly and meaningfully influences product/service and operational performances. While other studies have found that the implementation of ISO9000 did not result in operational enhancement.

Lima et al. (2000) concluded that the gap in profitability between certified and non-certified organizations was not important. Rahman (2001) found no difference between certified and non-certified organizations in customer fulfilment, process management, turn-over and number of customers. Terziovski et al. (1997) reported that after certification there was no substantial improvement in organizational performance while Quazi, Hong and Meng, (2002) concluded that there was no notable relationship between ISO9000 certification and operational performance.

## **2.6 Relationship between ISO9000 and organizational performance.**

Terziovski and Samon (2007) showed that operational performance is positively and meaningfully related to implementation, organizational commitment and planning. Previous studies have demonstrated the positive relationship between implementing the ISO9000 standard and organizational performance (Highlands, 1995; Elmuti, 1996; Arauz and Suzuki, 2004). Motives for ISO9000 certification resource-based view is that many organizations are driven towards certification for internal benefits (Yahya and Goh 2001). Boiral (2003) stated that an effective quality program including documented procedures, client communication, cost reduction and after-sales services drives the function of a positive role in internalization. For companies to obtain ISO9000's full benefits, they should accept that it is a long term investment and a continuous effort to sustain, not just a temporary solution (McAdam and McKeown, 1999). After receiving certification and not being able to fulfil its requirements will result in the certification not being beneficial to the company (Ilkay and Aslan, 2001, To, Lee, and Yu, 2011).

The department in which ISO9000 is implemented leads to improved operating performance and a better preface to service result in improved market success. So it is not directly linked to better market performance, but rather all aspects interlink each other leading to better overall performance (Sampio *et al.*, 2012). Improvement in all the areas of the operational process will result in better customer perceptions (Jang and Lin, 2008). A study of New Zealand and Australian manufacturing and service companies by Terziovski *et al.*, (1997) showed that there is a positive and important relationship between implementation, organizational assurance and operational performance. Lee *et al.*, (2009) said ISO9000 decreases the cost of poor quality and increases the efficiency of administration, increases and improves the service quality and the improvement of internal management systems. Kaziliūnas (2010) said that it positively enhances customer perspective and increases customer approval as well as increases internal processes. A study done by Musa and Ceyhun, (2007) in Istanbul showed that ISO9000 company had higher returns than those which were not certified. Heras *et al.*, (2002) showed that certified companies performed better in sales and profitability than non-certified companies.

## **2.7 Challenges of ISO9000**

Despite the many compensations associated with and mentioned by many different authors, consultants have advised business owners and managers about the rigorous process of



attaining ISO9000 certification before obligating resources to the certification process. The most encountered challenge by organizations is the enormous and burdensome documentation (Lee et al., 1999). Some of the problems related to the implementation of the standard are the short term expectations of what the organization expects resulting in the organization misinterpretation (Tsekouras et. al., 2002; Conti, 2004)) once certification has been achieved and thereafter not fulfilling its requirements which will not be beneficial to the organization. Other authors have also mentioned the high maintenance and implementation costs of the standard (Ilkay and Aslan, 2012). Some hindrances also include the lack of involvement by top management and their understanding of the standard and its requirements (Lee et al., 1999). There is also the risk of inadequate funding of the standard, as it becomes too costly a process and halfway through obtaining the standard certification funds would run out resulting in the cancellation of the process.

## **2.8 Chapter summary**

The chapter has presented the review of relevant literature to the study. Literature pertaining to the research objectives has been reviewed. From the literature review it has been noted that even though many studies were conducted on of ISO9000 and the benefits to companies, there still exist controversy about the impacts of ISO9000 on organizational performance. In addition, no research has been conducted specifically to investigate the impact of ISO9000 on organizational performance in Guateng, South Africa. Therefore, the knowledge gap that this study attempts to address has been identified. The next chapter presents the research methodology adopted in the study.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

The preceding chapter presented the literature review informing the study. This chapter therefore provides a discussion and justification of the research methods, techniques, procedures, instruments and statistical approach used to answer the research questions.

#### **3.2 Research philosophy**

The research philosophy reflects the central assumptions of the study, suppositions that form basis for the research strategy or methodology. The main research philosophy are realism, positivism, interpretivist and pragmatism (Cohen et al., 2011). Positivism refers to an epistemological position that advocates working in observable social realities and is best suited for quantitative research (Saunders et al., 2016). In positivist research, the role of researchers is limited to collection of quantitative data and objective interpretation. Whilst interpretivist is an epistemological position that advocates understanding the differences between humans in their roles as social actors and is most suitable for qualitative research (Saunders et al., 2016). This study adopted the positivist research philosophy as it assumes to address the inconsistencies surrounding the benefit of ISO9000 to managers, different companies who are seeking the accreditation and are uncertain of the standards benefits.

#### **3.4 Research Approach**

Research approach is defined as a plan and process consisting of the steps of data gathering, analysis and interpretation. The main research approaches are inductive approach which emphasises on generation of themes in qualitative research and the deductive approach which emphasises on testing theories in quantitative researches. Based on the quantitative nature of the study, deductive research approach was adopted.

### **3.5 Research Design**

Research design refers to a plan, guide or framework for data collection and analysis. The main quantitative research designs include surveys and questionnaires. For this study, the quantitative research design was used to generate numerical data that were analysed using the five -point Likert scale. This allowed better understanding of the impact of ISO9000 certification on organizational performances using a questionnaire in Gauteng companies, South Africa.

### **3.5 Target Population and Sampling**

#### **3.5.1 Target Population**

Total population includes the individuals who meet the set study standards of a needed group (Yin, 2017). A total population of 102 ISO9000 certified companies registered on SANAS, ALPHA and SABS in Gauteng, South Africa were involved in this study. A total of 102 questionnaires were sent and only 62 responses were received to give 60% response rate.

#### **3.5.2. Kind of sampling**

Sampling means the process of choosing of individuals, items or events to represent the total population (Johnson and Christensen, 2019). The main sampling techniques are the non-probability as well as probability sampling techniques (Johnson and Christensen, 2019). This study used random sampling which is a probability sampling technique. The quantitative study specifically employed the random sampling technique where each population element has an equal chance of being selected into the sample. Random sampling was used to conduct the research from 62 companies. The empirical data was collected from questionnaire surveys which was sent to 62 ISO9000 certified companies in Gauteng and answered by top management who are responsible for quality in their organizations.

#### **3.5.3 Sample Size**

According to Sekaran and Bougie (2010), sample size in research refers to the actual number of individuals, subjects, objects or elements selected to represent the total population characteristics. For the purpose of this study, 102 CEOs, quality managers and general managers responsible for quality management in their organizations of certified ISO9000 companies within Gauteng were randomly selected. However, 62 responded which based the final sample size to be 62. CEOs or senior management members are

responsible for the quality management system at their organizations with regard to the transformation of certain quality company operations and business performance.

### **3.6 The Research Instrument**

A research instrument refer to a tool used to collect research data (Forrester and Sullivan, 2018:36). This study employed structured questionnaires as the research instrument for data collection. The main motivation for the use of questionnaires are for easy reachability to as many respondents involved. The questionnaires were sent by emailing the participants and with a consent form. However, due to Covid-19 situation which restricted movement and face-to-face contact of people in the nation, the use questionnaires sent via emails seems to be a perfect choice at the time.

### **3.7 Data Collection**

A structured open-ended questions was used to collect data for the study (Appendix 5). The questions of 26 items with nominal or ordinal measurement level was comprised of three main sections. Section A contained questions on the participants' demographics or personal profile whilst Section B contained questions on the operational performances after ISO9001 certification related to the organization's internal operations such as productivity, product quality and customer satisfaction. Section C covered the business performances after ISO9001 certification related to financial and marketing such as sales growth, profitability and market share in the Gauteng province.

### **3.8 Pilot Study**

The purpose of pilot study was to identify questions that do not make sense to the participant, or if there is a problem with the question, that could result in biased answers.

### **3.9 Reliability of study**

The survey instrument will be assessed for reliability and validity. Reliability refers to the ability of the instrument to produce consistent results in repeated uses (Rahman, 2001). Internal factors of ISO9000 will be estimated using the reliability coefficient, Chronbach's  $\alpha$ . The  $\alpha$ -coefficient of Chronbach is known as a strong direct measure of internal reliability (Feng, Terziovski, & Samson, 2008). Using the reliability check system SPSS for Windows, and a scale with a Chronbach coefficient of  $\alpha$ , the resulting value can then be calculated whether or not it is recognized as a reliable measure (Nunnally, 1978).

### **3.10 Validity of study**

According to Hair et al. (1995), validity is the extent to which a measurement correctly reflects what it should be. Reliability and validity in this study was computed by taking several measurements on the same subjects. A validity coefficient of 0.70 or higher was considered as acceptable.

### **3.11 Data Analysis**

Two follow up emails were sent four weeks after the initial email (Singh, 2008). Chi-Square test was performed on the variables to generate frequencies and cross tabulations using the Statistical Package for Social Scientists (SPSS) version 25.0 created for the management of the statistical analysis of social data. The Chi-Square statistic was used to test the relationships between the variables to determine if the hypothesis that there is a relationship between the variables in the population which invariably affects the operational and business performances.

### **3.12 Bias**

The technique used to assess non-response bias was by randomly selected ISO9000 certified companies that did not respond and that were interviewed by telephone (Singh, 2008). The interview findings revealed that the key reason for failing to participate in the research study was due to lack of time, because it was addressed to senior management. Despite the previous suggestion of non-response bias, the final sample used is unlikely to pose a problem (Psomas and Kafetzopoulos, 2014).

### **3.13 Ethical Considerations**

The all key ethical issues such as permission, anonymity, deception, confidentiality, informed consent and deception were adhered to.

#### **3.13.1 Permission to conduct the study**

The study sought permission to conduct the study from relevant authorities. Firstly, permission was obtained from the University to carry out the study (Appendix 3).

#### **3.13.2 Informed Consent**

It was ensured that the participants provided their informed consent to voluntarily participate in the study. In doing so, the participants were requested to sign consent sheets (Appendix 2) in which they were informed about the research aim and purpose, as well as reminded of their right of freedom to withdraw at any point when they felt so. Informed

consent was given without subjecting the potential participant to coercion, intimidation or undue influence.

### **3.13.3 Confidentiality and Anonymity**

The participants were assured of privacy, anonymity and confidentiality. The researcher also ensured that information provided was treated as confidential and not disclosed to other third party. Anonymity in this study was ensured by not collecting information such as name, address, email address etc. Confidentiality in this study was ensured by direct delivery and receipt of the questionnaires between the researcher and the participant.

### **3.14 Chapter Summary**

The chapter has presented the research methodology adopted in the study. The chapter outlined and discussed the research design, research philosophy, research strategy, population, sampling, and research instrument and data analysis procedures. Issues of research ethics, reliability, viability and research bias were also discussed. The next chapter focuses on presentation, analysis, discussion as well as interpretation of the result.

# CHAPTER 4

## RESULTS

### 4.1 Introduction

The focus of this chapter was to present the concise analysis of the data obtained, in the form of graphs, table and other figures. Inferential methods include the use test values such as chi square that are represented using the  $p$  values.

### 4.4 Demographic data analysis

#### 4.4.1 Gender of participants

A total of 62 questionnaires were received which gave a response rate of 60 per cent. Figure 4.1 below indicates that 50.8% of the respondents were male while 49.2% were female. Almost 30% of the female respondents were married while 19.5% were spinsters.

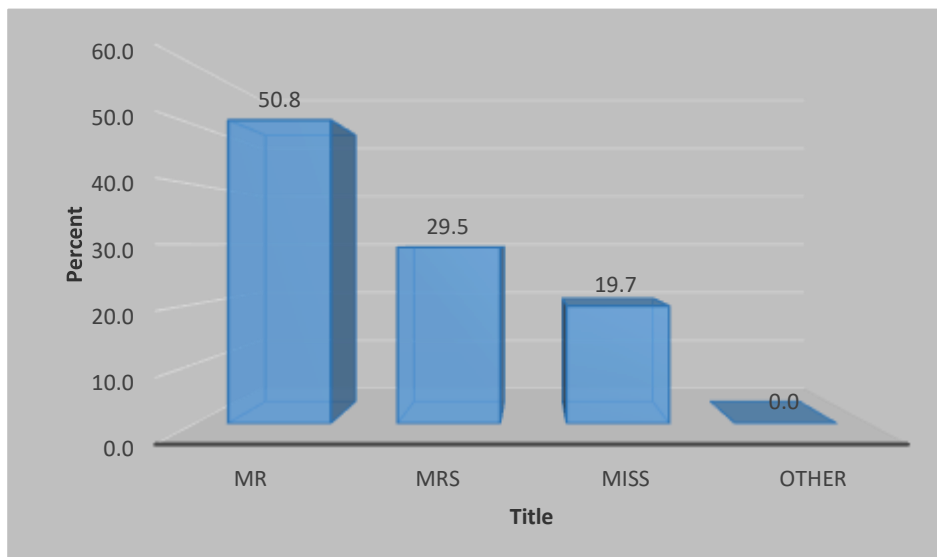


Figure 4. 1 Title of respondents

#### 4.4.2 Role of participants

As shown in Figure 4.2, 58.1 % of the respondents were quality managers; 21% were general managers; 1.6% were managing directors and 19.4% were of other roles in the senior managerial positions.

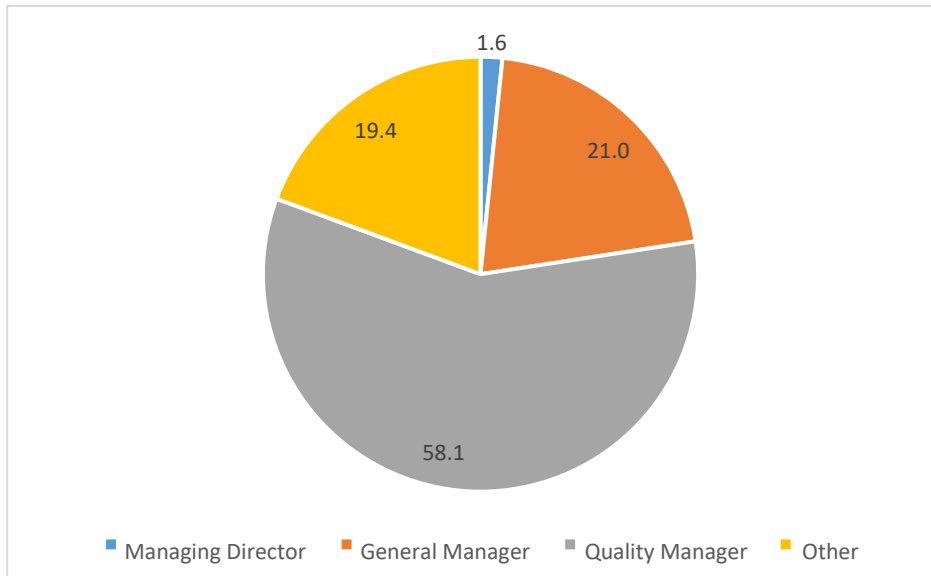


Figure 4. 2 Designation of respondents (Q2).

#### 4.4.3 Type of organization

Based on the organization type, manufacturing organization was represented by 58.1%, service providing company by 38.7% and other companies by 3.2%.

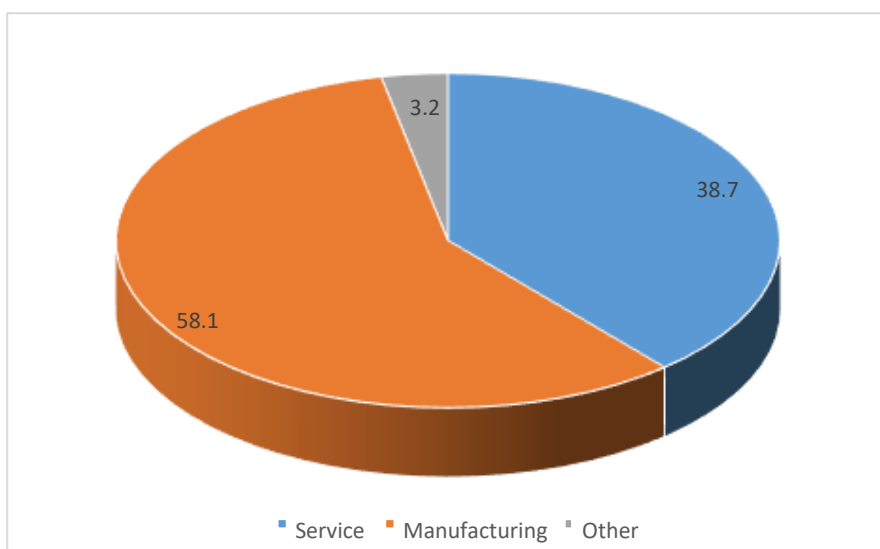


Figure 4. 3 Different organization types (Q3)



#### 4.4.4 Duration of ISO9000 certification

40% of the respondents indicated that their organizations have had the ISO9000 certification for ten years and more as indicated in Figure 4.4. Also, 19.4% have been certified between 7-9 years, 16.1% between 4-6 years and 24.2% have been certified between 1-3 years.

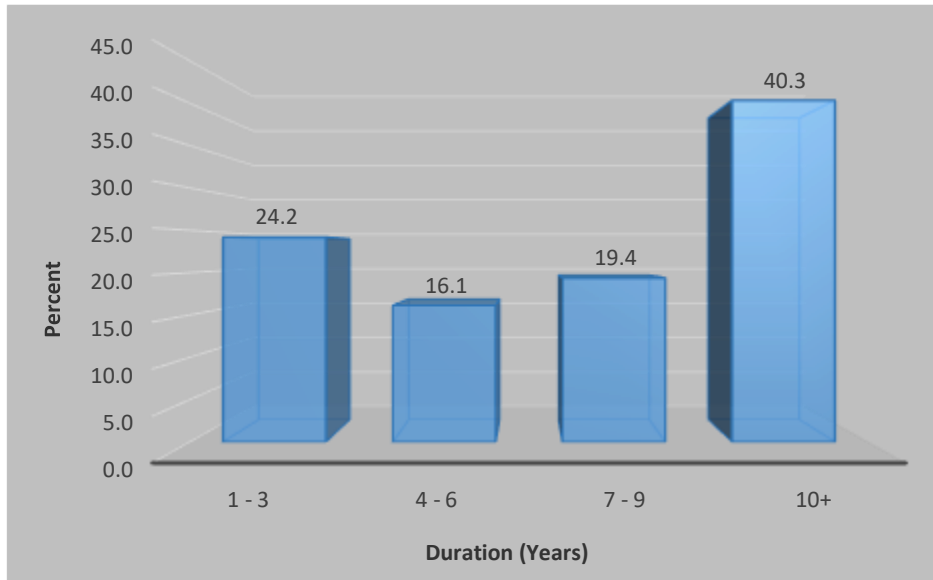


Figure 4. 4 Duration of ISO9000 certification in organizations (Q4)

#### 4.4.5 Reduction in product/service costs after certification

The figure below indicates the level of agreement on the performance measure, with regards to the reduction product/service costs thereof after ISO9000 certification. 46.8% of the respondents were in agreement, 24.2 % were undecided, 24.2 % strongly agreed, 1.6 % strongly disagreed and 3.2 % disagreed.

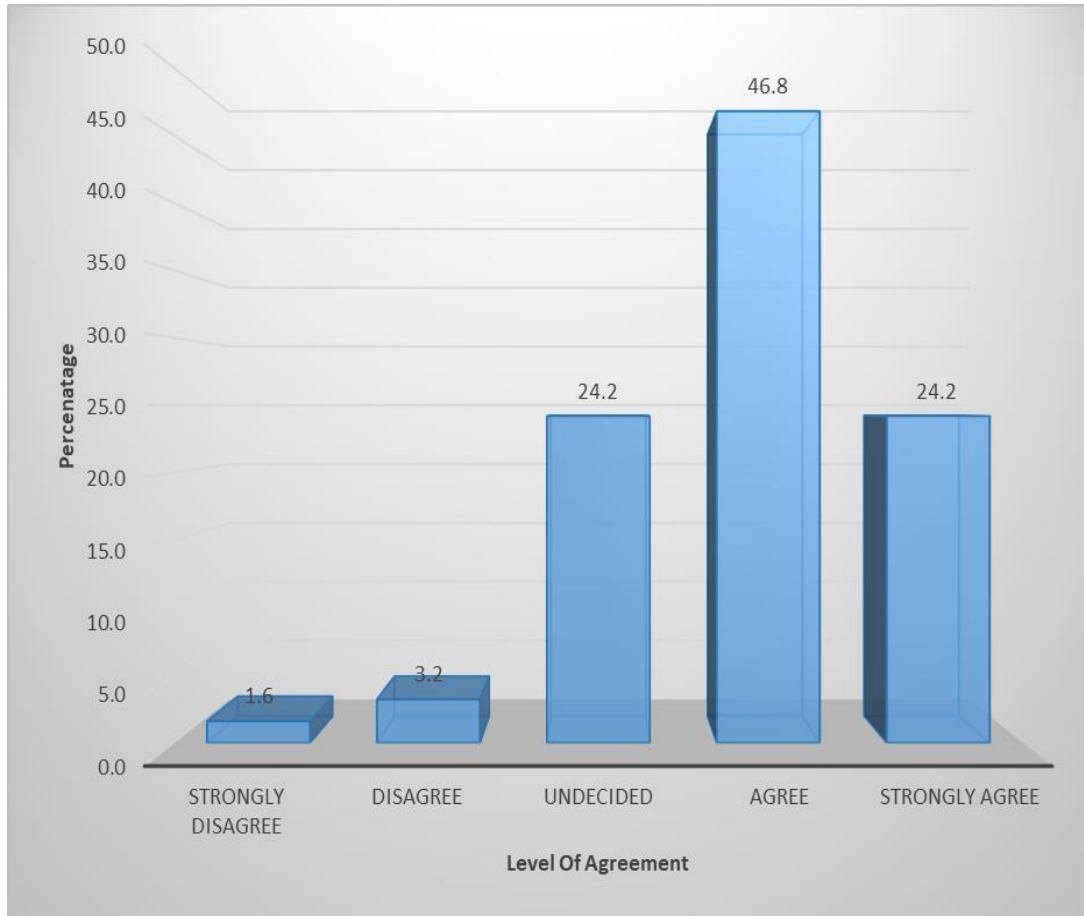


Figure 4. 5 Reduction in product/service costs after certification (CR1)

#### 4.4.6 Return on goods/services after certification

More than 60% of the respondents indicated that the return on goods/services are reduced after ISO9000 certification as indicated in Figure 4.6. 21% of the respondents strongly agreed and 14.5% were undecided.

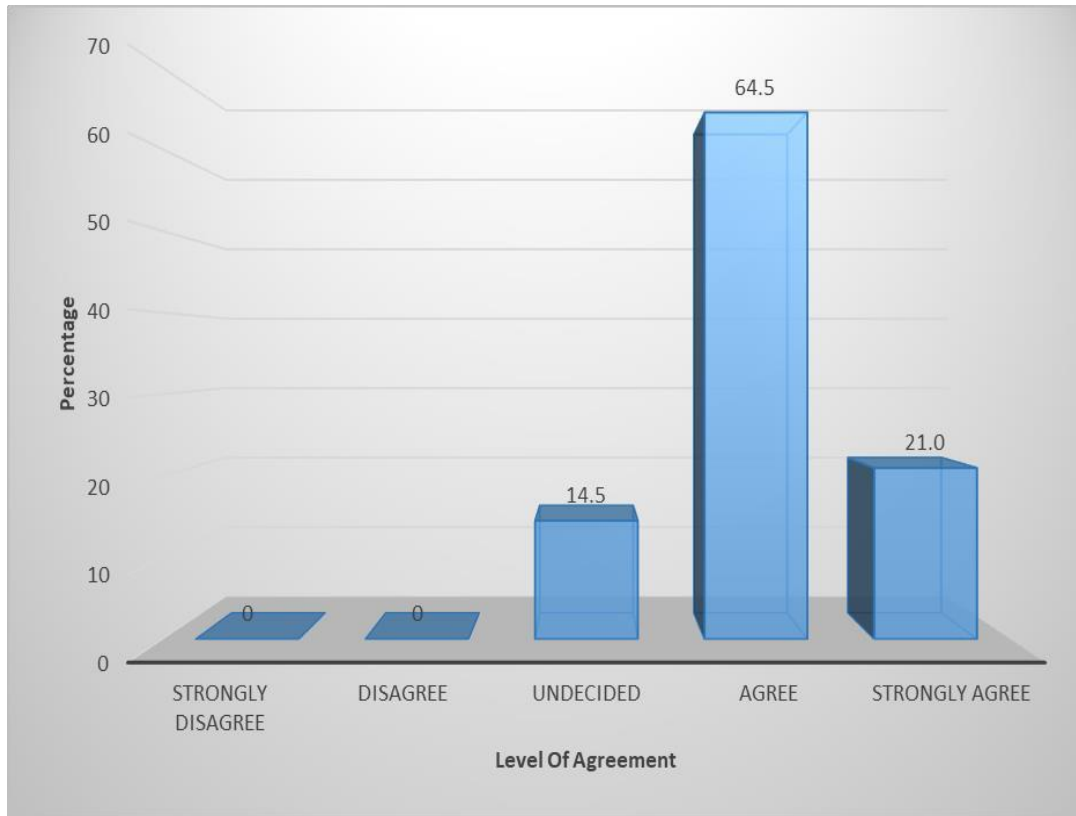


Figure 4. 6 Agreement level on the variable goods/services is reduced (CR2).

#### 4.4.7 Level of agreement on operational efficiency and productivity after certification

Based on Figure 4.7, 64.5% strongly agrees there is an improvement in operational efficiency and productivity after certification, 21% of the respondents strongly agreed while 14.5 % were undecided.

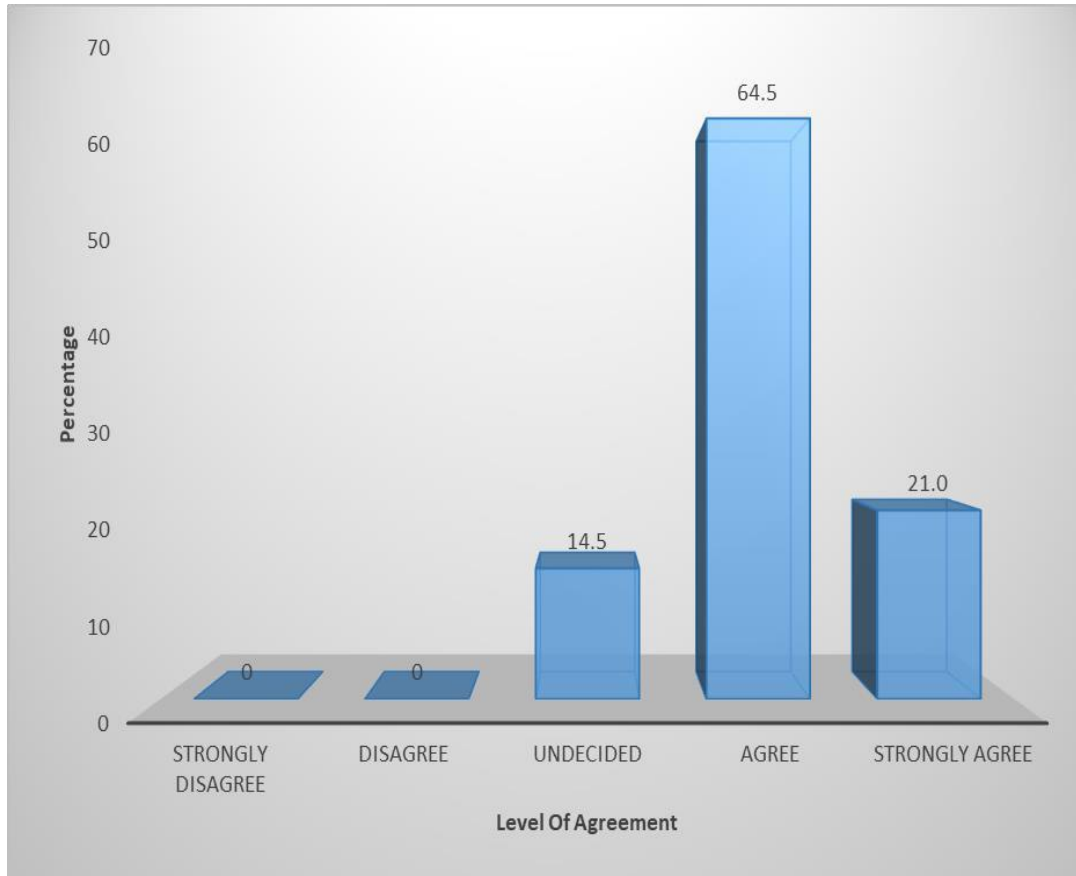


Figure 4. 7 Level of agreement on operational efficiency and productivity after certification (P3).

#### 4.4.8 Level of agreement on operational efficiency and productivity after certification

There was an improvement in product quality (Q14) after certification as agreed by 53.2% of the respondents. 40.3% were in strong agreement, while 1.6 % and 4.8 % of the respondents disagreed and undecided respectively.

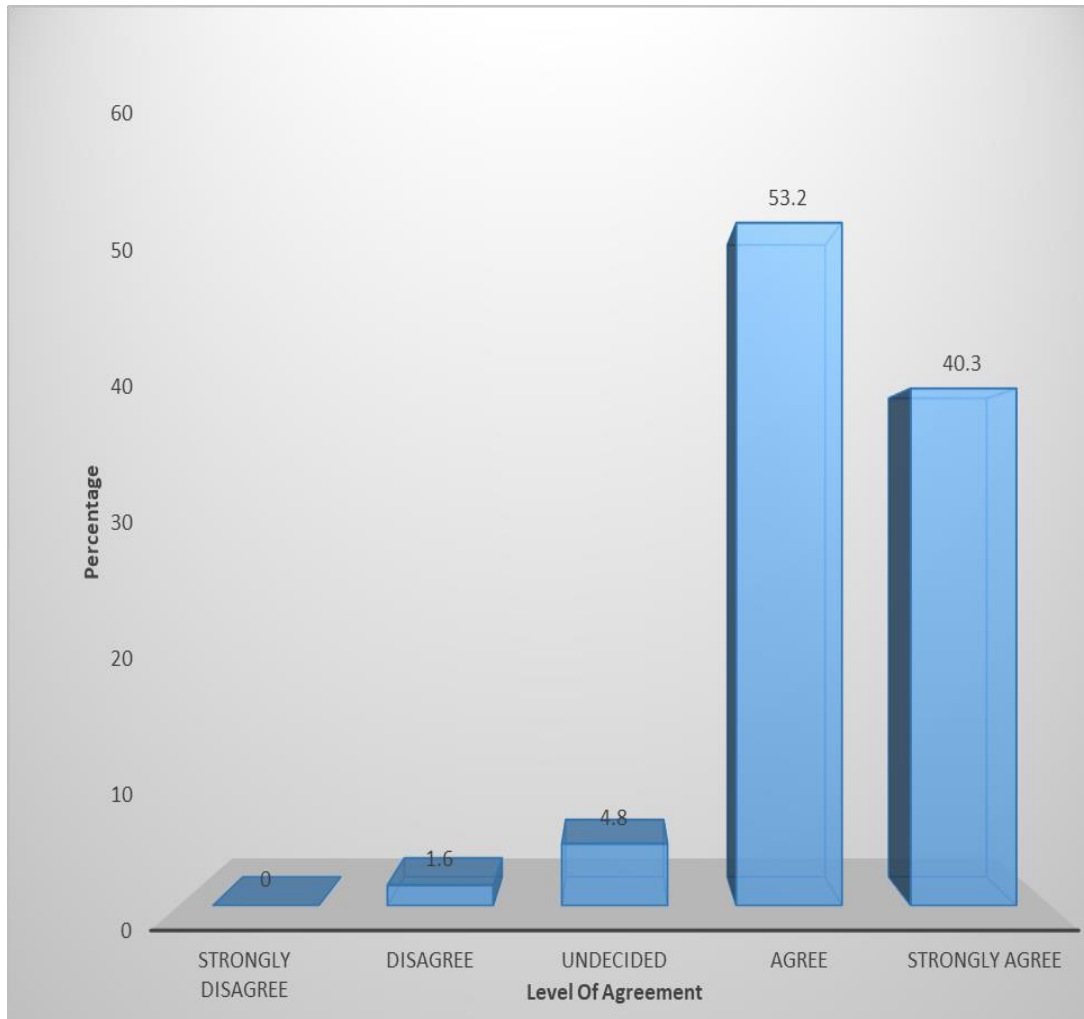


Figure 4. 8 Level of agreement on the improvement in product quality after certification.

#### 4.4.9 Level of agreement on operational efficiency and productivity after certification

More than 55% of the respondents agreed that there was a reduction in production/service variation and defect (Q15) after ISO9000 certification as shown in Figure 4.9. 26.2 % of respondents agreed strongly, while 1.6% disagreed and almost 14.8 % were undecided.

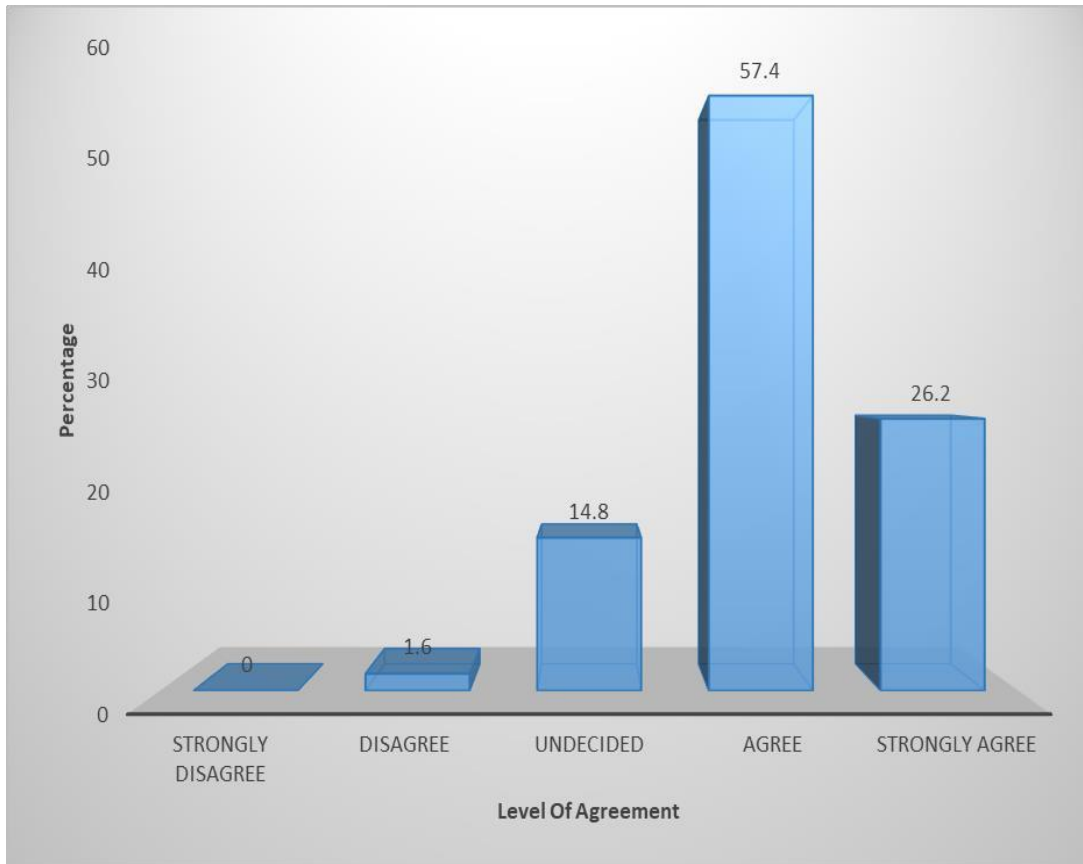


Figure 4. 9 Agreement level of reduction in production/service variation and defects after ISO9000 certification.

#### 4.4.10 Level of agreement on operational efficiency and productivity after certification

Customer satisfaction was improved (CS6) as agreed by nearly 60% of the respondents as illustrated in figure 4.10, 35.5 % of the respondents strongly agreed while 1.6% disagreed and 4.8 % of the respondents were undecided.

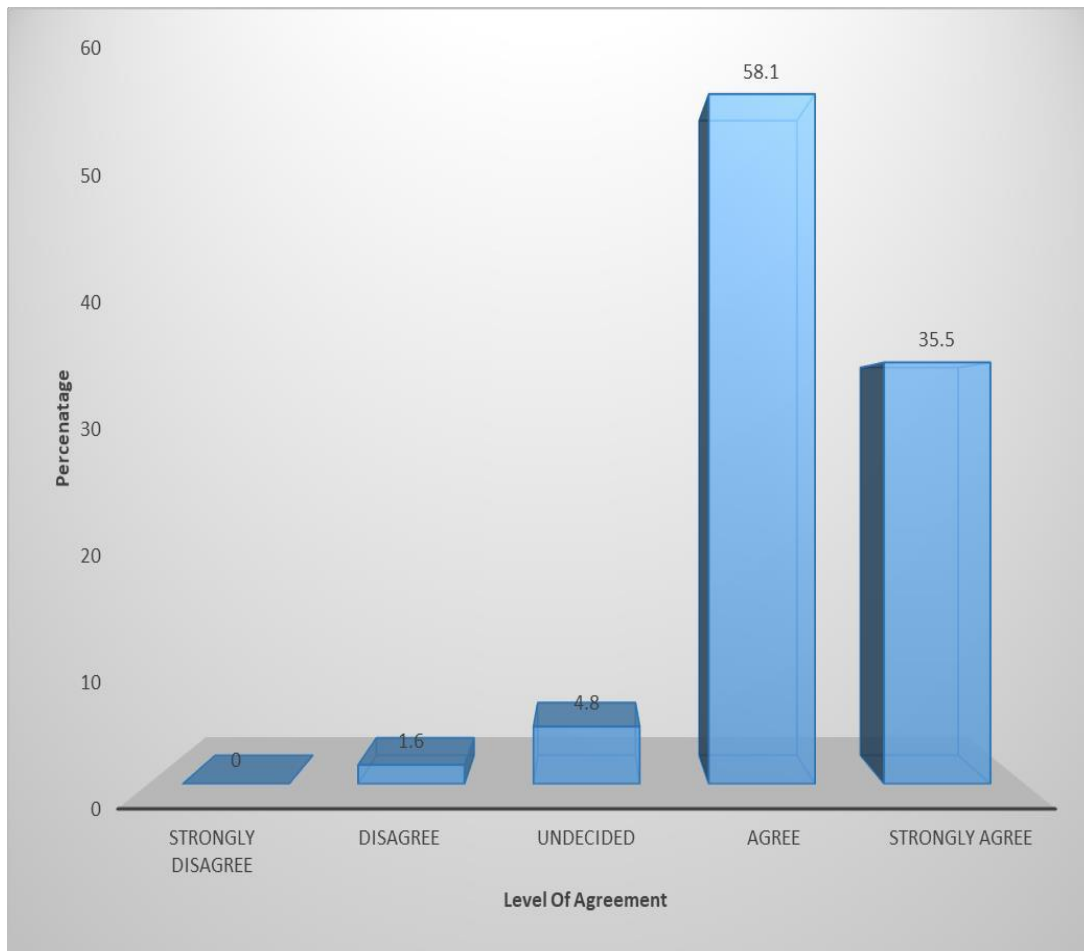


Figure 4. 10 Level of agreement on the improvement of customer satisfaction.

#### 4.4.11 Percentage of the reduction in customer complaints

There was a reduction in customer complaints (CS7) as indicated by more than 65% of the respondents as shown in Figure 4.11. 22.6 % of the respondents strongly agreed while 3.2 % disagreed and 8.1 % were undecided.

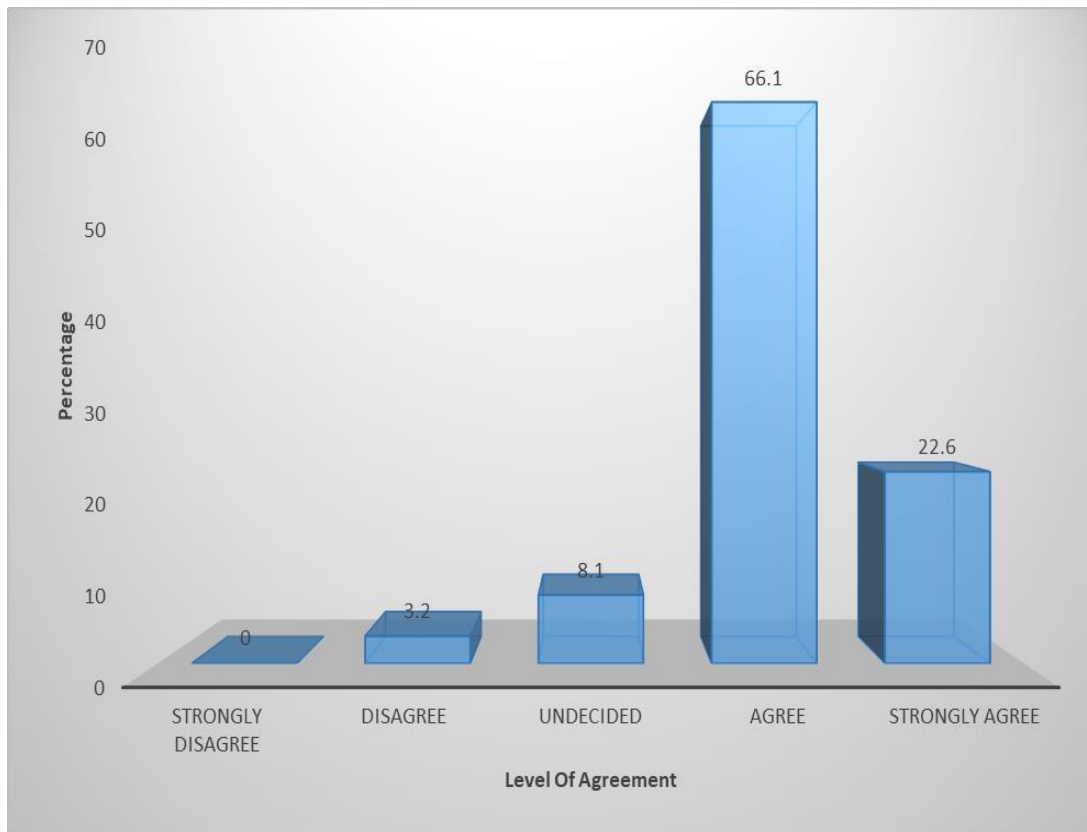


Figure 4. 11 Percentage of the reduction in customer complaints.



#### 4.4.12 The level of agreement on the retaining rate of existing customers

The retaining rate of existing customers has been improved (CS8) according to 50% of the respondents who agreed and 37.1% which have strongly agreed as shown in Figure 4.12. Also, 9.7% of the respondents were undecided while 3.2% disagreed.

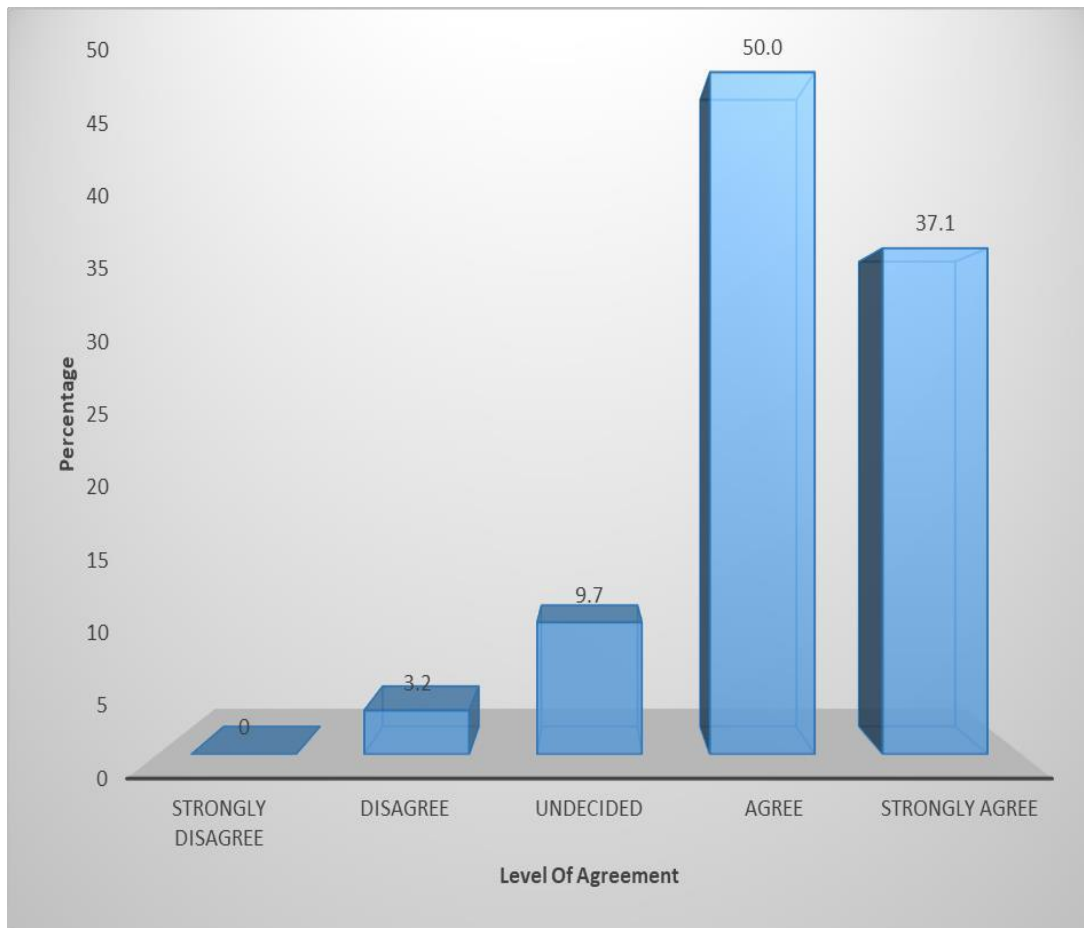


Figure 4. 12 The level of agreement on the retaining rate of existing customers.

#### 4.4.13 Process standardization and systemization improvement level of agreement

More than 60% of the respondents agreed and 27.4% strongly agreed on the improvement of process standardization and systemization (IP19) after certification. Only 9.7% of the respondents were undecided.

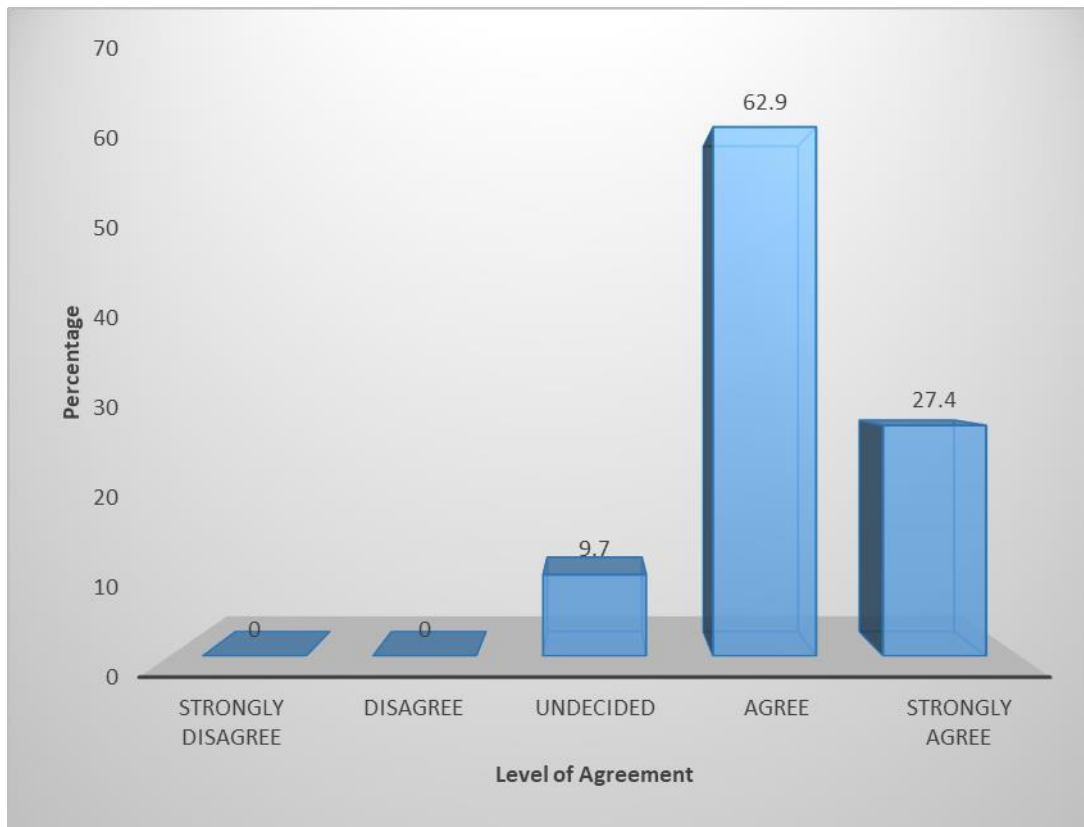


Figure 4. 13 Process standardization and systemization improvement level of agreement.

#### 4.4.14 Level of agreement on the improvement of internal transfer performance

Performance of internal transfer was improved (IP10) with 57.4% of the respondents reported to be in agreement, 27.9% of them strongly agreed while 14.8% of the respondents were undecided.

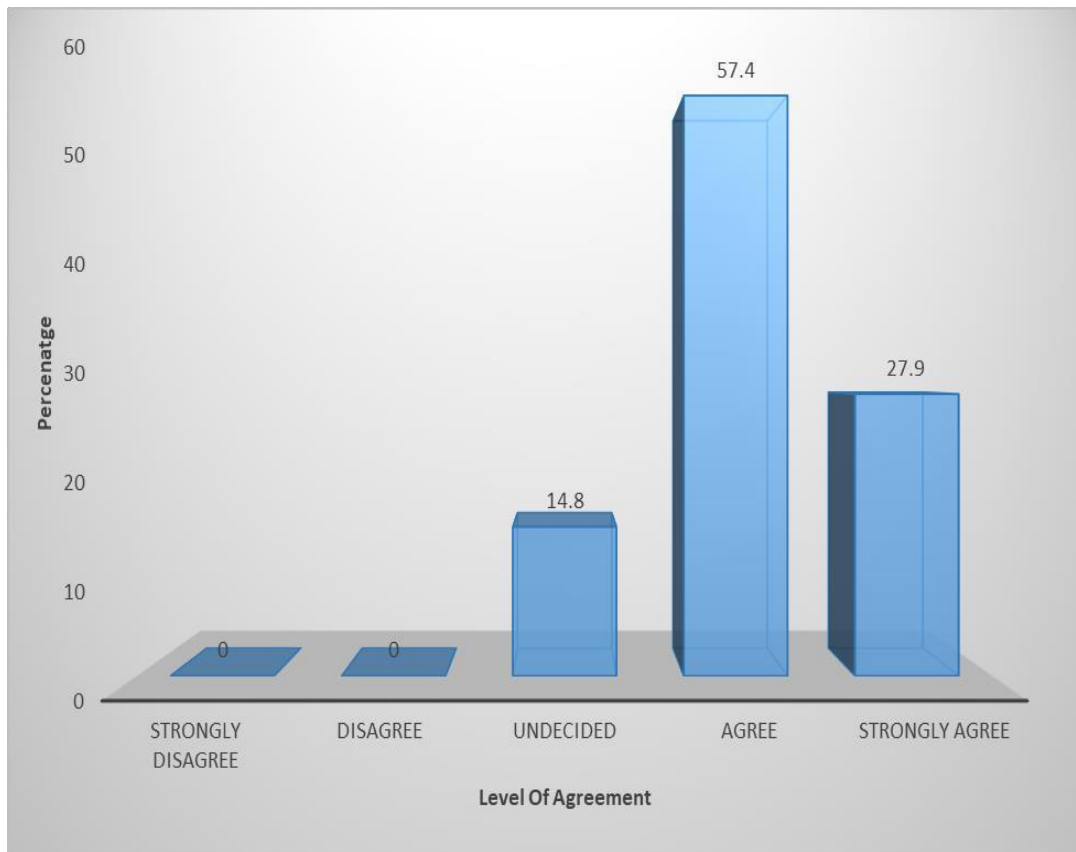


Figure 4. 14 Level of agreement on the improvement of internal transfer performance.

#### 4.4.15 Level of agreement on the increase in teamwork efficiency

In Figure 4.15, 50% of the respondents agreed there was an increase in teamwork efficiency (IP11), 33.9% strongly agreed while 16.1 % of the respondents were undecided.

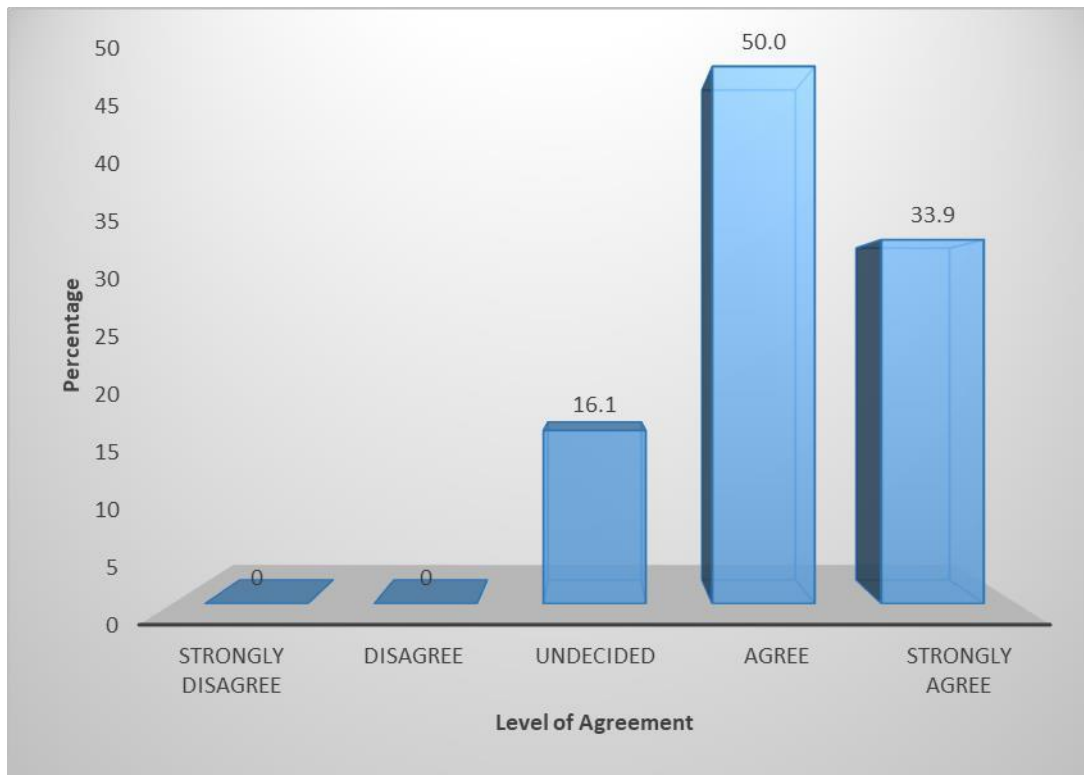


Figure 4. 15 Level of agreement on the increase in teamwork efficiency

#### 4.4.16 Level of agreement on the enhancement of operating efficiency after certification

It was observed that the operating efficiency was enhanced (IP12) as agreed by 52.5%, strongly agreed by 32.8% and nearly 15% of the respondents were undecided.

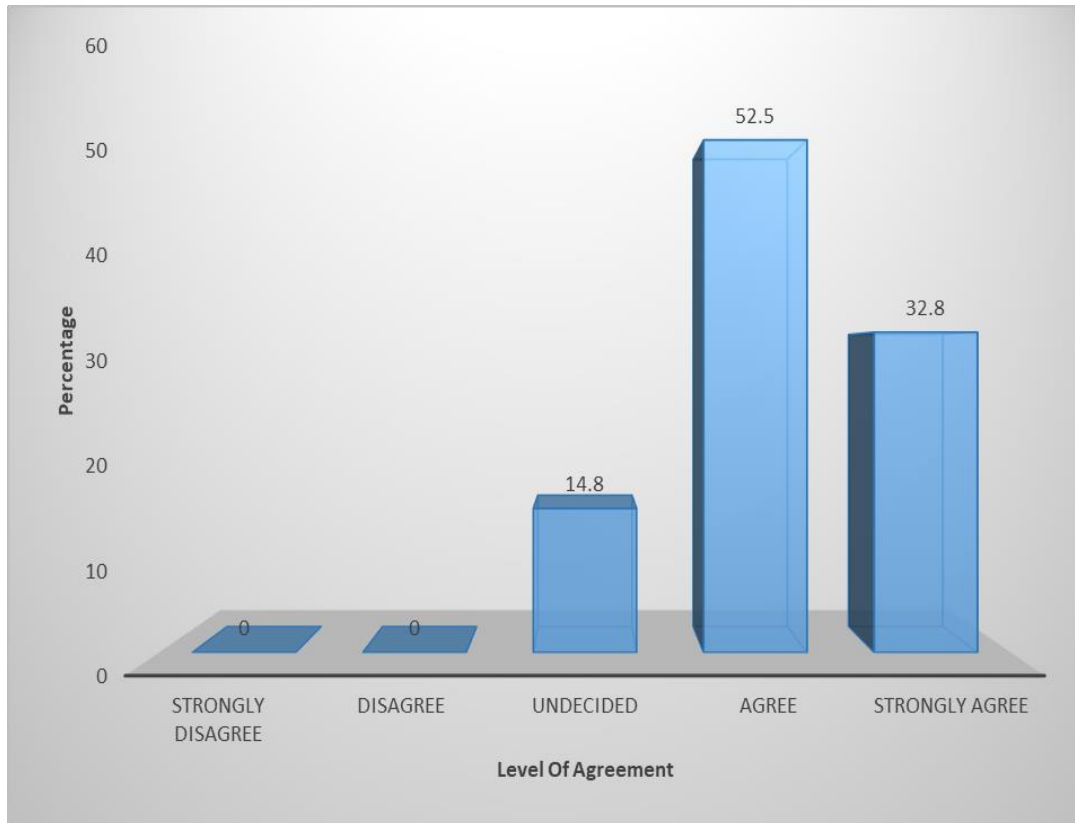


Figure 4. 16 Level of agreement on the enhancement of operating efficiency after certification.

#### 4.4.17 Level of agreement on the improvement of employee morale and cohesiveness after certification

There was an increase in employee morale and cohesiveness (EM13) as indicated by 32.3% of the respondents who were in agreement. However, unlike the other tested variables, EM13 reported 9.7% of strongly disagree, 19.4% of the respondents disagree and almost 27.4% of the respondents were undecided.

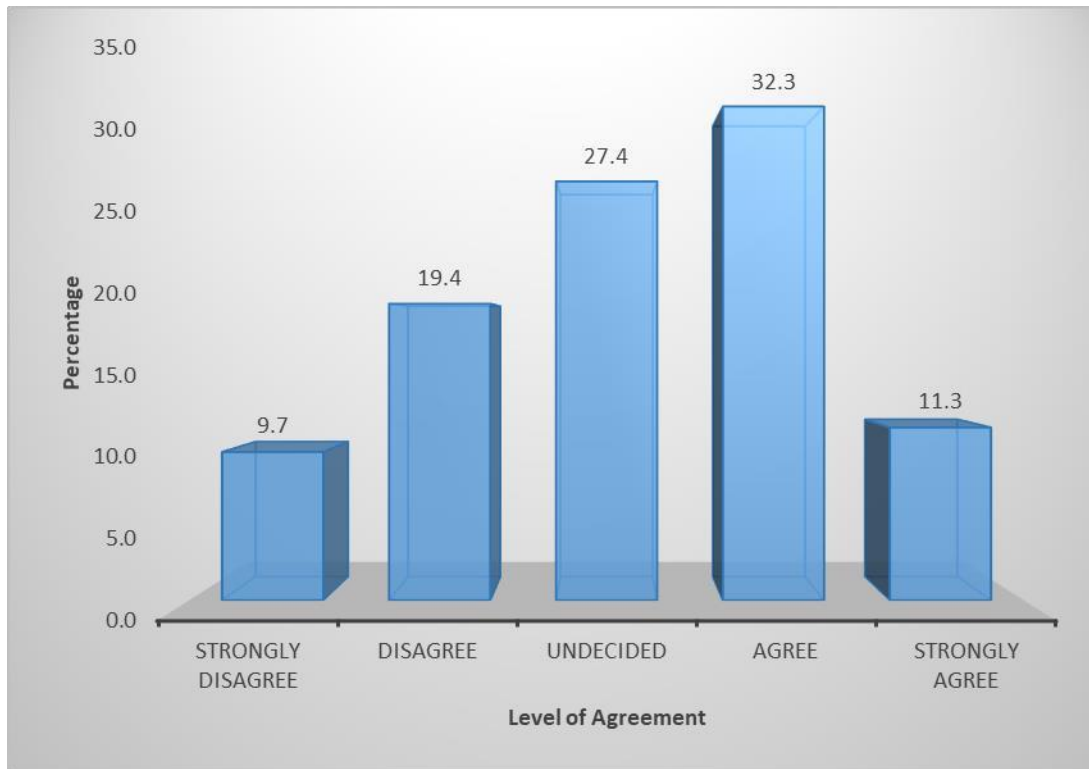


Figure 4. 17 Level of agreement on the improvement of employee morale and cohesiveness after certification

#### 4.4.18 Level of agreement on the improvement of the employees' ability to solve problems after certification

There was an increase in the employees' ability to solve problems (EM14) according as reported by 36.1% of the respondents who were in agreement. EM14 has a 13.1% of the respondent having strongly disagree, 18 % of the respondents disagree and almost 20% of the respondents were undecided.

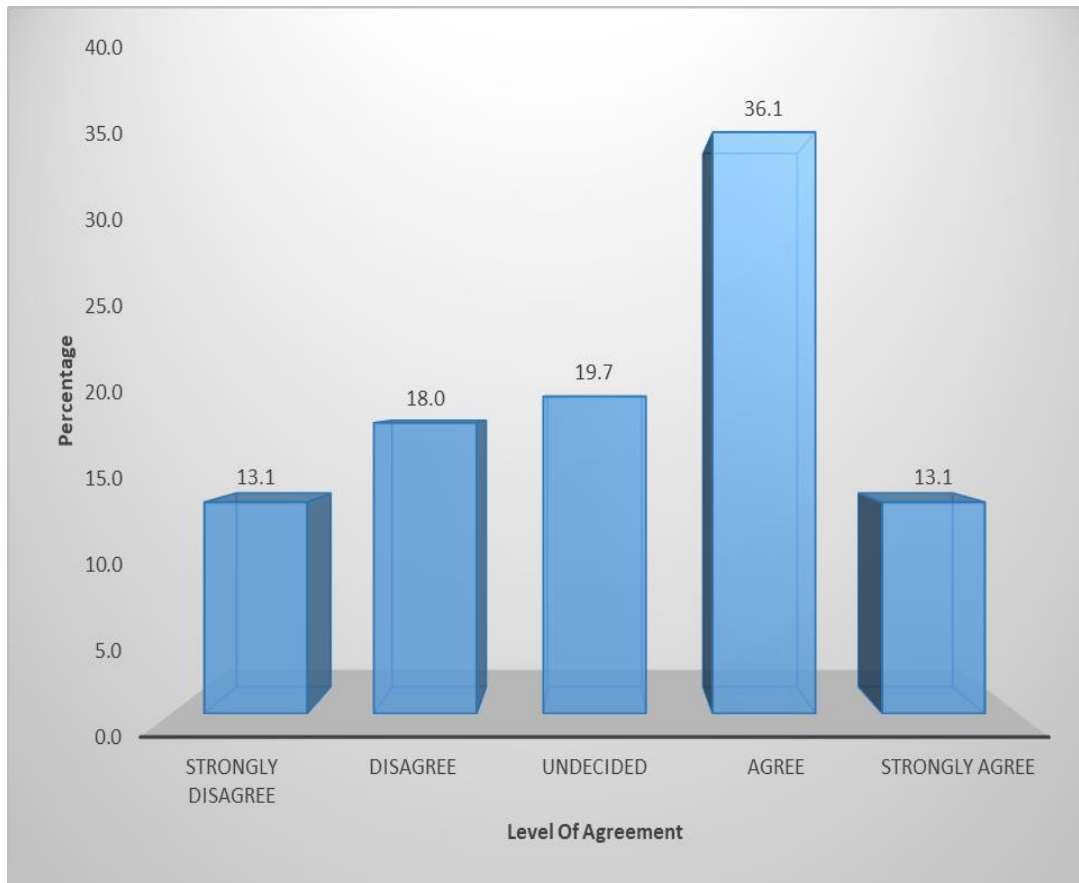


Figure 4. 18 Level of agreement on the improvement of the employees' ability to solve problems after certification.

#### 4.4.19 Level of agreement on the improvement of employee's service attitude after certification

There was an increase in employees' service attitude (EM15) by 42.6% of the respondents as illustrated in Figure 4.19. EM15 reported a high number (11.5%) of strongly disagree, 16.4 % of the respondents disagree and almost 20% of the respondents were undecided.

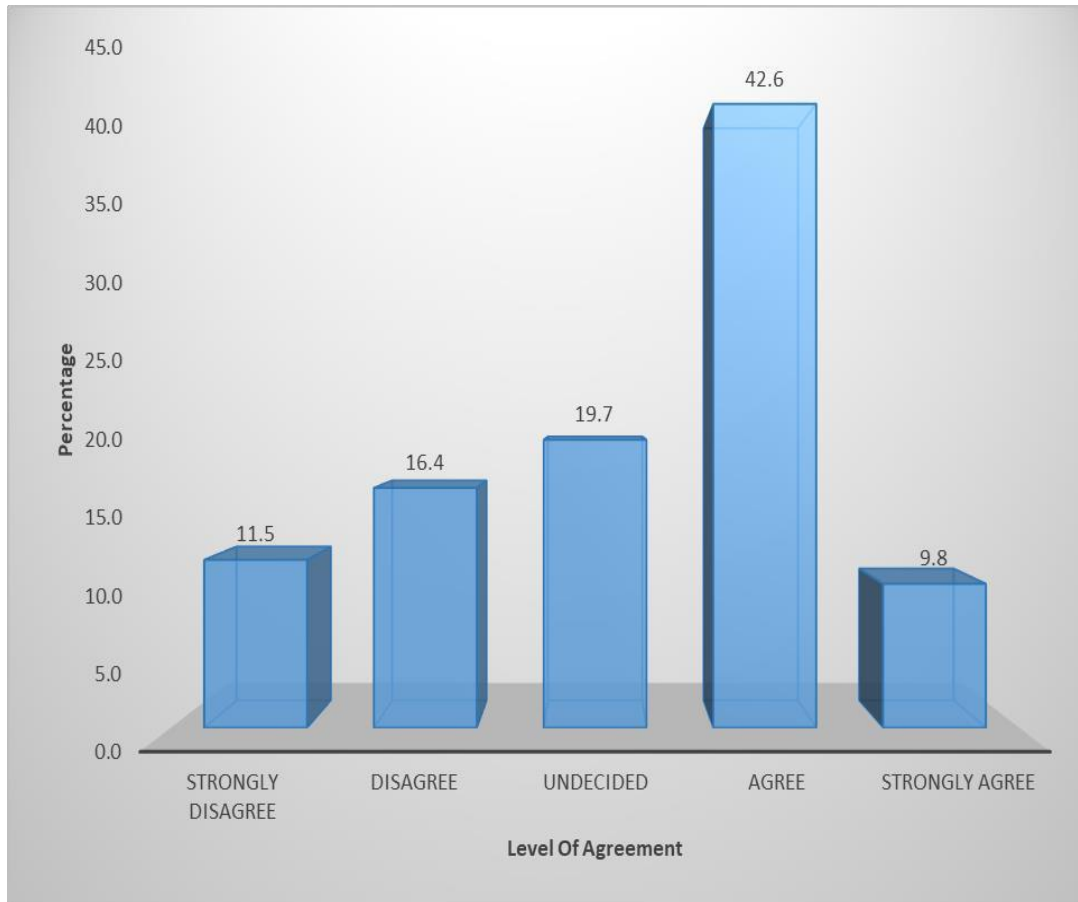


Figure 4. 19 Level of agreement on the improvement of employee's service attitude after certification.



#### 4.4.20 Level of agreement on the improvement of enhanced market share after certification

38.7% of the respondents were in strong agreement that there was an increase in enhanced market share (MS16), 29.0% of which were in agreement, 25.8 % of the respondents were undecided and 6.5 % disagreed.

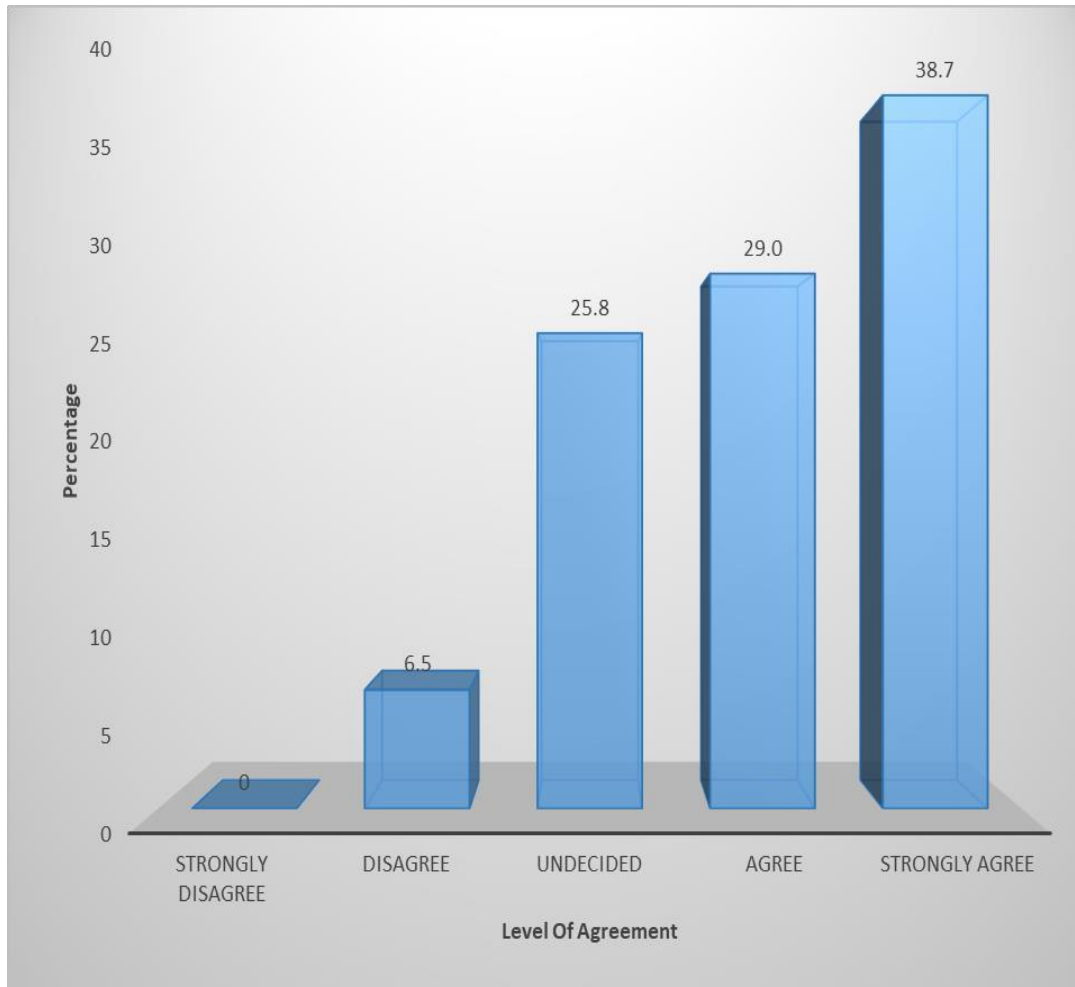


Figure 4. 20 Level of agreement on the improvement of enhanced market share after certification.

#### 4.4.21 The level of agreement on the improvement of market share or new products after certification

There was an increase in market share of new products (MS17) with 33.9% of the respondents agreed, 33.9% strong agreed, almost 26% of the respondents were undecided and 6.5% disagreed with the statement.

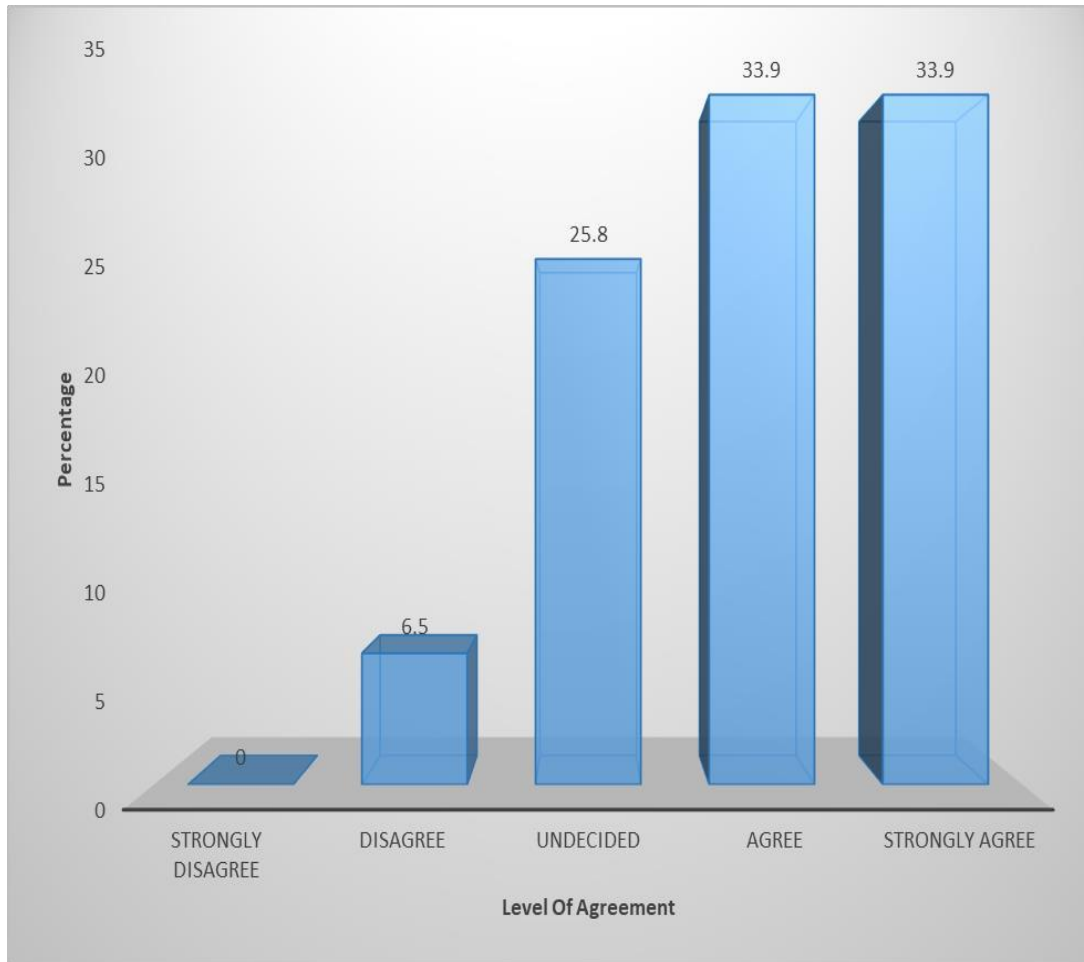


Figure 4. 21 The level of agreement on the improvement of market share or new products after certification.

#### 4.4.22. The improvement level of effectively promoting corporate culture in organizations

The organization effectively promotes corporate culture (CI18) according to 50% of the respondents who agreed, 25.8% of whom strongly agreed, 22.6 % of the respondents were undecided and 1.6 % disagreed.

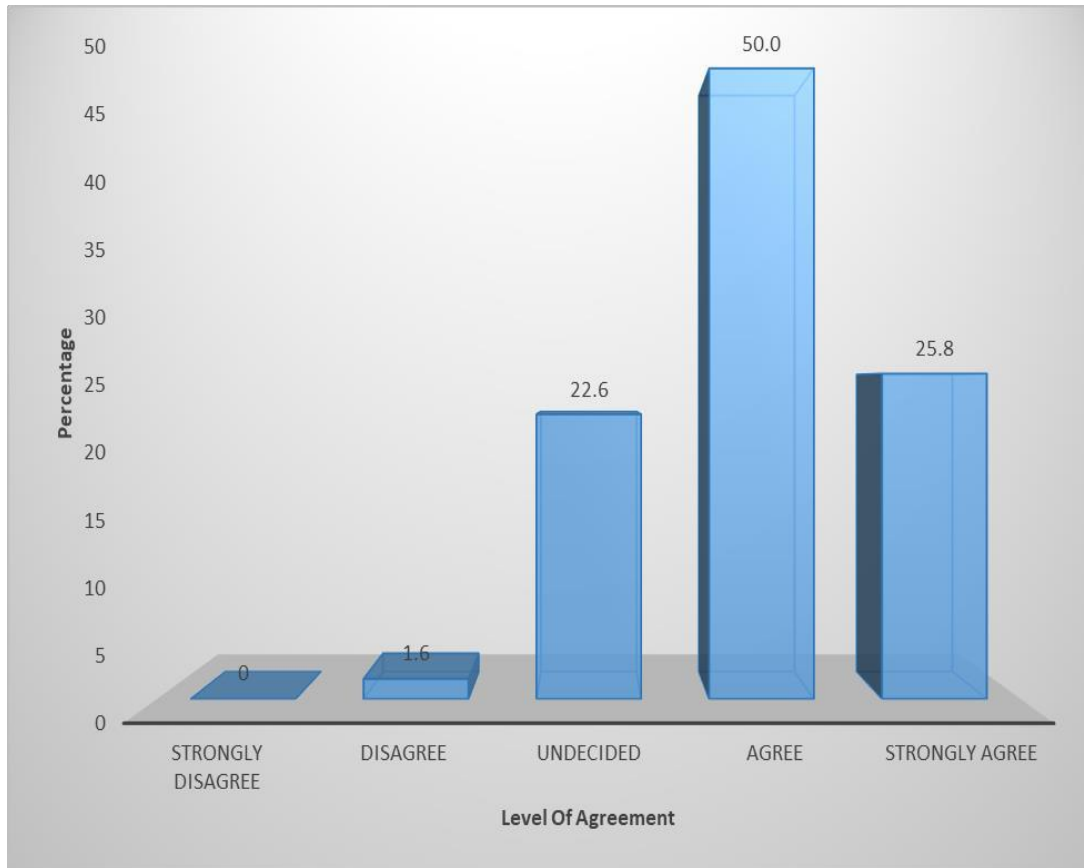


Figure 4. 22 The improvement level of effectively promoting corporate culture in organizations.

#### 4.4.23 Level of agreement on corporate goal and social needs compliance

As illustrated in Figure 4.23, corporate goals were more compliant with social needs (CI19) with 40% respondents agreed, almost 24.2% in strong agreement, 29 % of the respondents were undecided and 6.5 % disagreed.

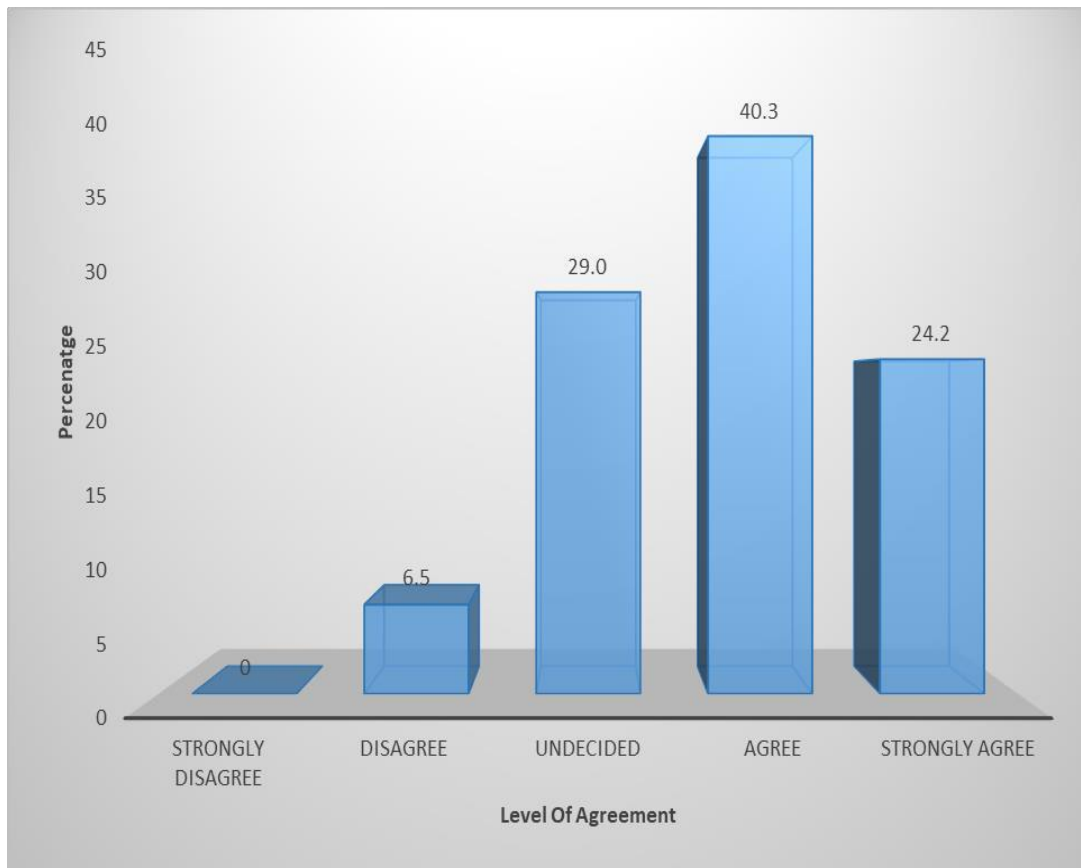


Figure 4. 23 Level of agreement on corporate goal and social needs compliance.

#### 4.4.24 The level of agreement to fast modify product design is enhanced after certification

More than 50% of the respondents agreed that the ability to fast modify product design was enhanced (CA20) as illustrated in Figure 4.24. 19.7% of the respondents strongly agreed and 27.9% were undecided.

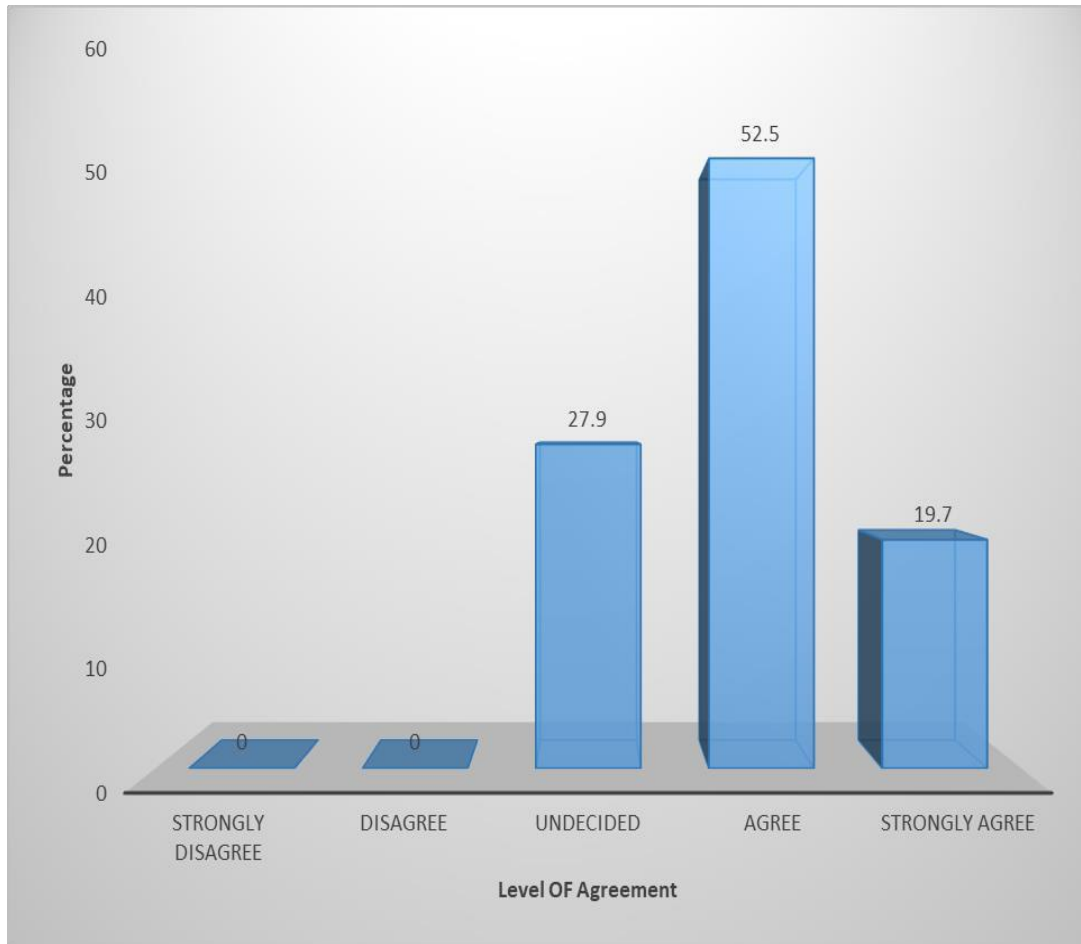


Figure 4. 24 The level of agreement to fast modify product design is enhanced after certification.

#### 4.4.25 Improvement in new product development after certification

There was an improvement in new product development (CA21) as 47.5% and 26.2% of the respondents agreed and strongly agreed respectively and 26.2% of the respondents were undecided.

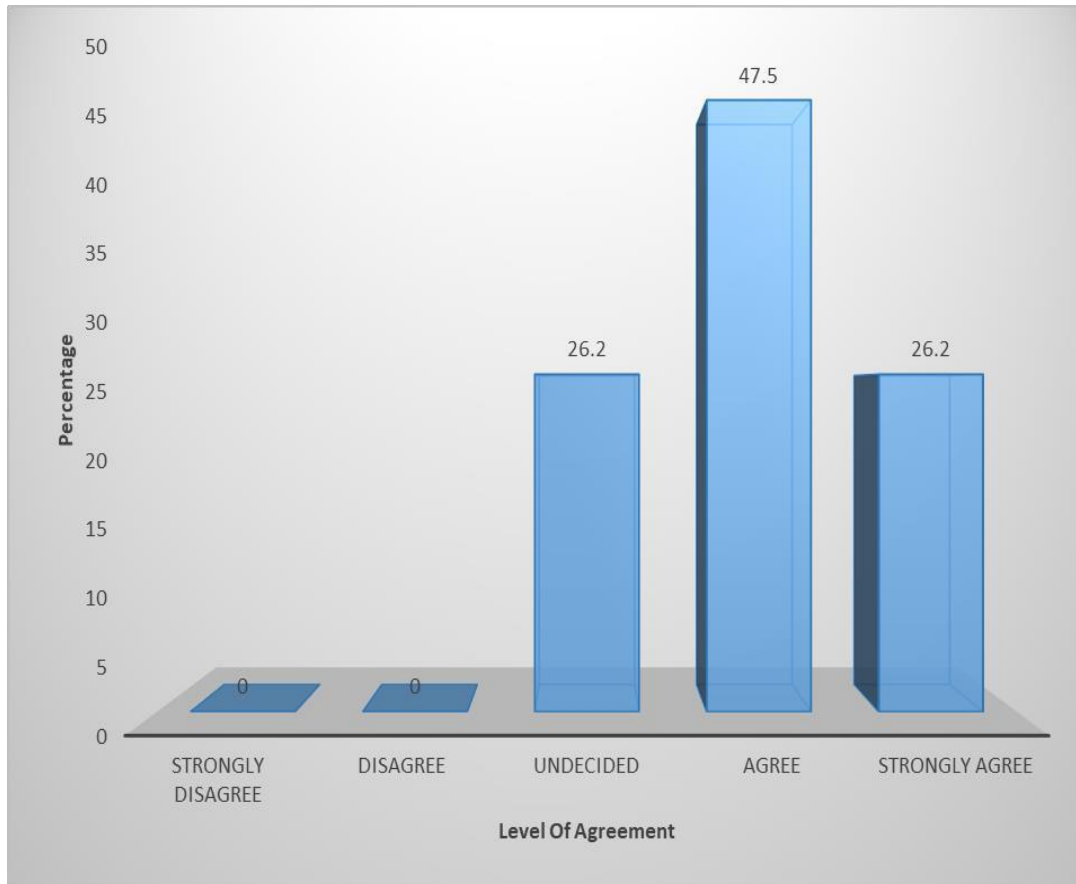


Figure 4. 25 Improvement in new product development after certification.

#### 4.4.26 Improvement in price competition of products after certification

There was an improvement in price competition of products (CA22) as agreed by 42.6%, 27.9% strongly agreed, 24.6% of the respondents were undecided and 4.9 % disagreed with the statement.

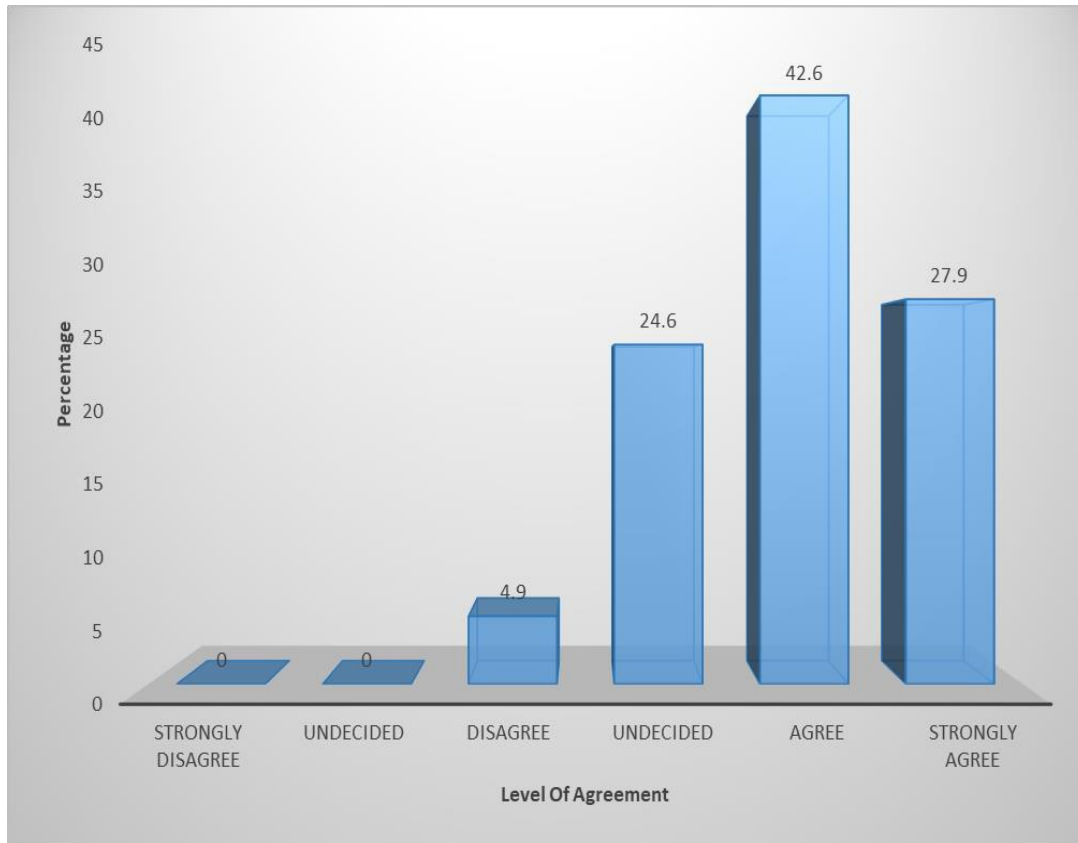


Figure 4. 26 Improvement in price competition of products after certification.

#### 4.4.27 The level of agreement on the organization effectively promoting corporate reputation and image

More than 55% of the respondents agreed while 29.5% strongly agreed on the improvement of effectively promoting corporate reputation and image (CA23) after certification. About 10% of the respondents were undecided and 3.3 % disagreed.

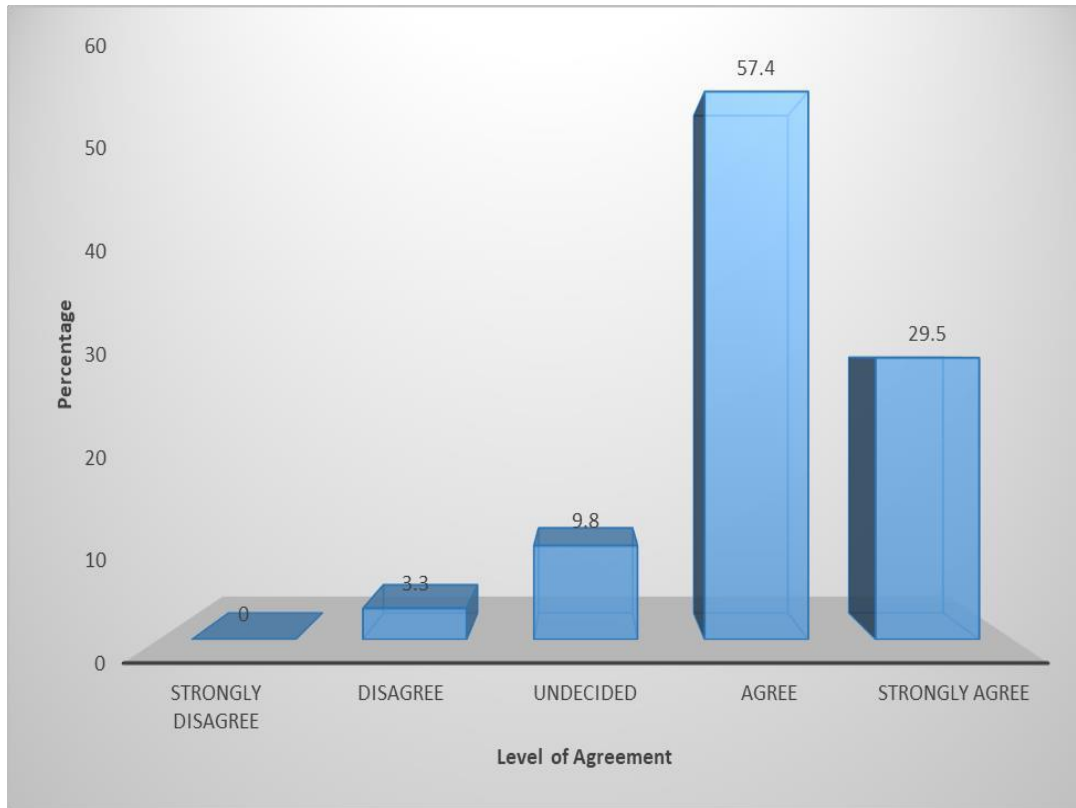


Figure 4. 27 The level of agreement on the organization effectively promoting corporate reputation and image.



#### 4.4.28 Enhancement of sales growth after certification

The sales growth rate was enhanced (OP24) after certification as illustrated in Figure 4.28. 40.3% of the respondents were in agreement, 32.3% were in strong agreement, 21% were undecided and 6.5 % were is disagreement.

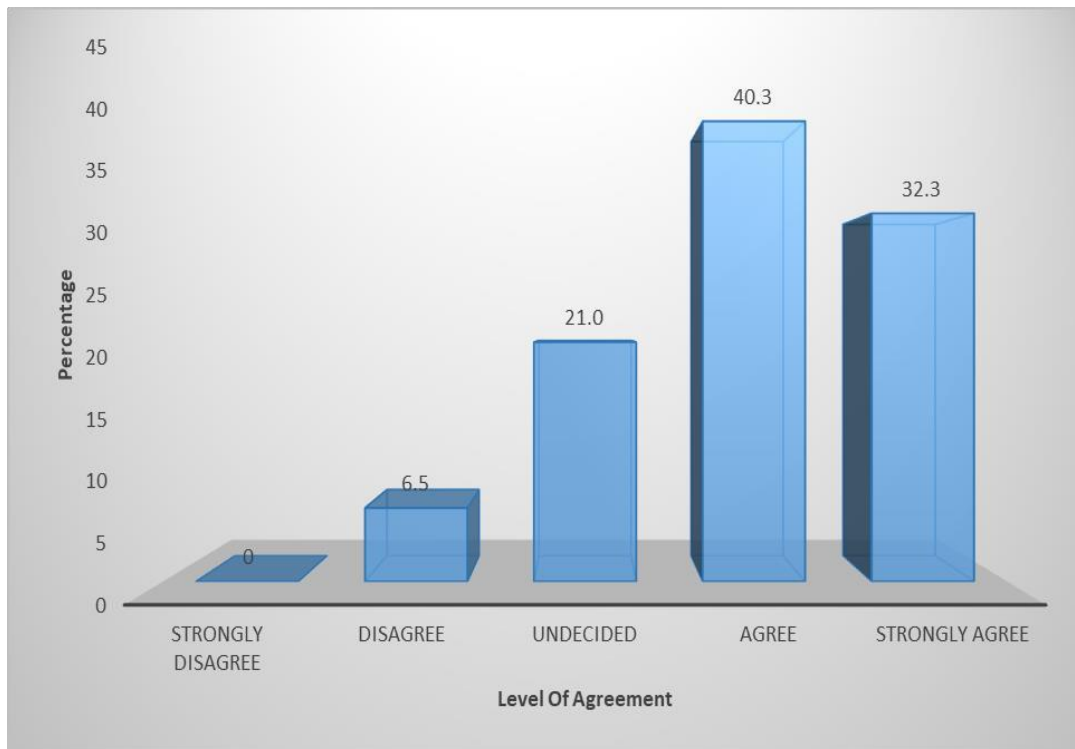


Figure 4. 28 Enhancement of sales growth after certification.

#### 4.4.29 Increase in profitability after certification

There was an increase in profitability (OP25) as illustrated in Figure 4.29. 41.9% of the respondents agreed with the statement while almost 33% strongly agreed. 21% of the respondents were undecided and 4.8% disagreed with the statement.

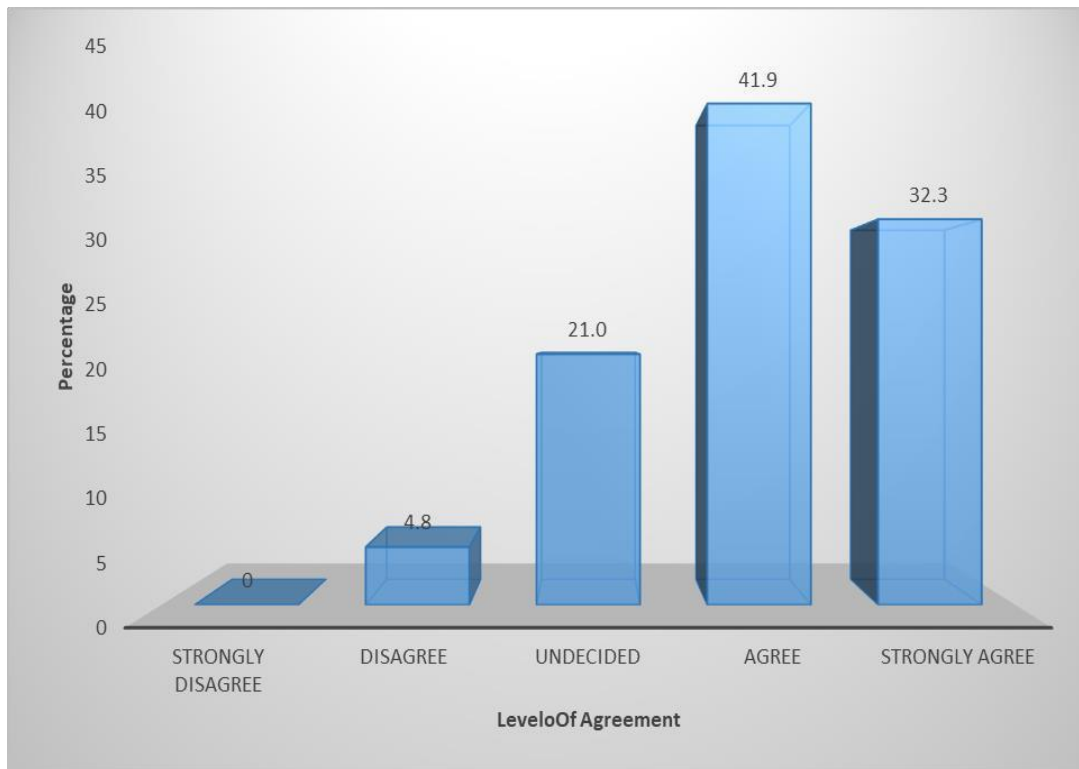


Figure 4. 29 Increase in profitability after certification.

#### 4.4.30 Level of agreement on the increase of purchase after certification

As shown in Figure 4.30, 48.4% and 33.9% of the respondents agreed and strongly agreed respectively as there was an increase in repeat purchase (OP26) after certification while only 17.7% were undecided.

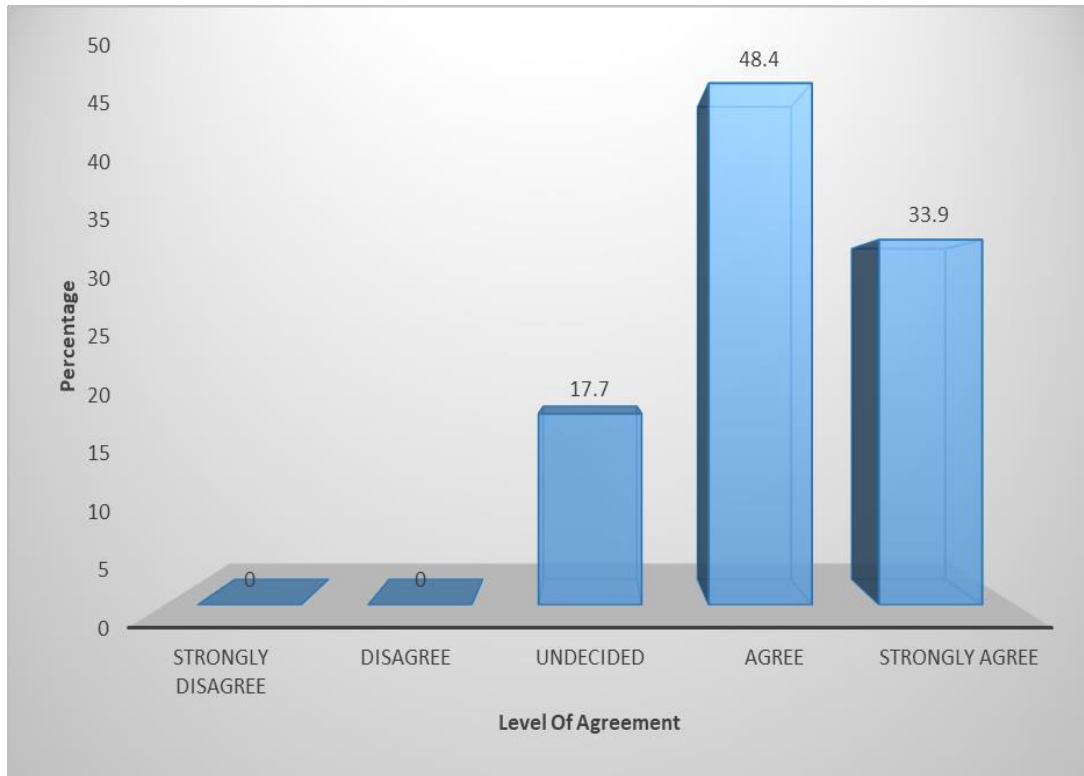


Figure 4. 30 Level of agreement on the increase of purchase after certification.

#### 4.4 Scoring analysis of operational performance and business performance after ISO9000 certification

The respondents' scoring patterns by variable per section was analysed based on the variables and relevance of the statements as shown in Figure 4.31 and 4.32.

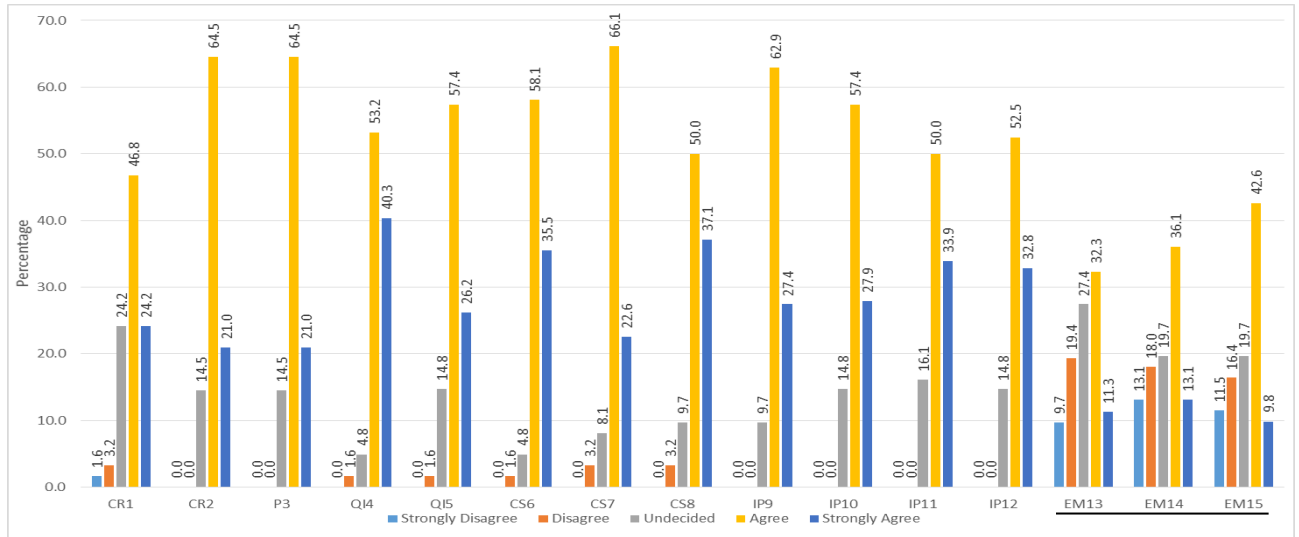


Figure 4. 31 Scoring patterns of operational performance after ISO9000 certification

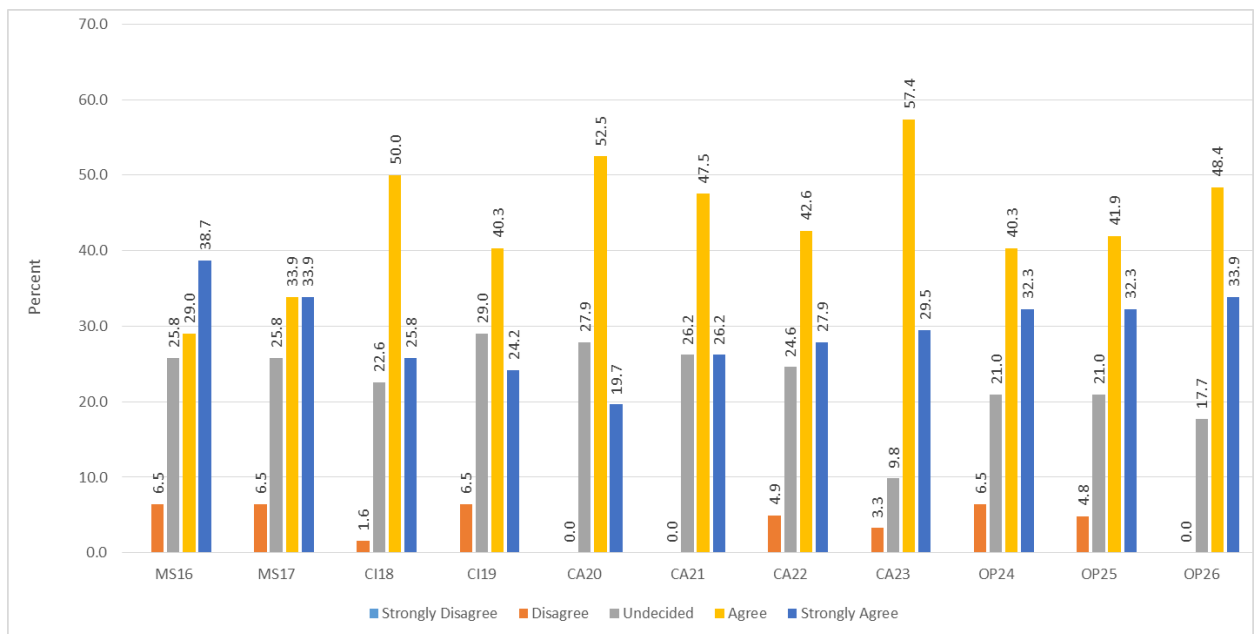


Figure 4. 32 Summary of scoring patterns of business performance after ISO9000 certification

#### 4.7 Statistical Chi-Square Test

A Chi-square test was conducted as shown in Table 4.3 to determine the significant differences in the scoring trends per statement. The null hypothesis claims that similar numbers of respondents scored across each option for each statement. The alternate states that there is a significant difference between the levels of agreement and disagreement.

As shown below, EM13, EM14 and EM15 have a significantly lower Chi-square score as compared to the rest of the Chi-square scores.

Table 4. 1 Chi-square test on the operational and business performance from respondents

Statement	Chi-Square	df	Asymp. Sig.	Variable Code
Title	9.279	2	0.010	Q1
Designation	41.871	3	0.000	Q2
Organization type	28.774	2	0.000	Q3
Organization Certification of ISO9000 Duration (years)	8.581	3	0.035	Q4
Product/ service costs are reduced	42.516	4	0.000	CR1
The return on goods/services is reduced	27.516	2	0.000	CR2
There is an improvement in operational efficiency and productivity	27.516	2	0.000	P3
There is an improvement in product quality	49.226	3	0.000	QI4
There is a reduction in production/ Service variation and defect	41.492	3	0.000	QI5
Customer satisfaction is improved	53.484	3	0.000	CS6
There is a reduction in customer complaints	60.968	3	0.000	CS7
The retaining rate of existing customers is improved	36.71	3	0.000	CS8
Process standardization and systemization are improved	27.323	2	0.000	IP9
Performance of internal transfer is improved	17.443	2	0.000	IP10
There is an increase in teamwork efficiency	10.677	2	0.005	IP11

Operating efficiency is enhanced	13.016	2	0.001	IP12
There is an increase in employee morale and cohesiveness	7.2205	4	0.001	EM13
There is an increase in the employees' ability to solve problems	5.1516	4	0.000	EM14
There is an increase in employees' service attitude	4.6148	3	0.000	EM15
There is an increase in enhanced market share	13.613	3	0.003	MS16
There is an increase in market share of new products	12.452	3	0.006	MS17
This organization effectively promotes corporate culture	29.226	3	0.000	CI18
Corporate goals are more compliant with social needs	14.774	3	0.002	CI19
The ability to fast -modify product design is enhanced	10.656	2	0.005	CA20
There is an improvement in new product development	5.541	2	0.063	CA21
There is an improvement in price competition of products	17.623	3	0.001	CA22
The organization effectively promotes corporate reputation and image	43.197	3	0.000	CA23
The sales growth rate is enhanced	16.065	3	0.001	OP24
There is an increase in profitability	18.903	3	0.000	OP25
There is an increase in repeat purchase	8.742	2	0.013	OP26

df: Degrees of freedom

Asymp. Sig.: Asymptotic significance

#### 4.8 Cross tabulations

The Fisher's Exact Test was used to define the relationship between biographical data and variables of operational efficiency as shown in table 4.4. It was used to determine whether there was a statistically significant relationship between the variables, rows vs columns.

When the p-value (Exact Sig. (2-sided)) is  $< 0.05$ , it means that the variables have a meaningful relationship. If  $> 0.05$ , the relationship is not significant, a p-value is generated from a test statistic. A significant result is indicated with " $p < 0.05$ ".

The null hypothesis states that there is no association between the two. The alternate hypothesis indicates that there is an association.

Table 4. 2 Cross tabulations and Fishers Exact test on the operational and business performance from respondents

<b>Cross tabulations</b>	<b>Fisher's Exact Test</b>
Product/ service costs are reduced * Gender	0.326
Product/ service costs are reduced * Designation	0.776
Product/ service costs are reduced * Organization type	0.100
Product/ service costs are reduced * Organization Certification of ISO9000 Duration (years)	0.657
The return on goods/services is reduced * Gender	0.106
The return on goods/services is reduced * Designation	0.409
The return on goods/services is reduced * Organization type	0.629
The return on goods/services is reduced * Organization Certification of ISO9000 Duration (years)	0.335
There is an improvement in operational efficiency and productivity * Gender	1.000
There is an improvement in operational efficiency and productivity * Designation	0.463
There is an improvement in operational efficiency and productivity * Organization type	0.729

There is an improvement in operational efficiency and productivity * Organization Certification of ISO9000 Duration (years)	0.453
There is an improvement in product quality * Gender	0.351
There is an improvement in product quality * Designation	0.995
There is an improvement in product quality * Organization type	0.108
There is an improvement in product quality * Organization Certification of ISO9000 Duration (years)	0.020
There is a reduction in production/service variation and defect * Gender	0.906
There is a reduction in production/service variation and defect * Designation	0.726
There is a reduction on production/service variation and defect * Organization type	0.108
There is a reduction in production/service variation and defect * Organization Certification of ISO9000 Duration (years)	0.023
Customer satisfaction is improved * Gender	0.292
Customer satisfaction is improved * Designation	0.232
Customer satisfaction is improved * Organization type	0.012
Customer satisfaction is improved * Organization Certification of ISO9000 Duration (years)	0.038
There is a reduction in customer complaints * Gender	0.272
There is a reduction in customer complaints * Designation	0.601
There is a reduction in customer complaints * Organization type	0.100
There is a reduction in customer complaints * Organization Certification of ISO9000 Duration (years)	0.044
The retaining rate of existing customers is improved * Gender	0.435
The retaining rate of existing customers is improved * Designation	0.799
The retaining rate of existing customers is improved * Organization type	0.002
The retaining rate of existing customers is improved * Organization Certification of ISO9000 Duration (years)	0.367



Process standardization and systemization are improved * Gender	0.858
Process standardization and systemization are improved * Designation	0.866
Process standardization and systemization are improved * Organization type	0.970
Process standardization and systemization are improved * Organization Certification of ISO9000 Duration (years)	0.041
Performance of internal transfer is improved * Gender	1.000
Performance of internal transfer is improved * Designation	0.351
Performance of internal transfer is improved * Organization type	0.357
Performance of internal transfer is improved * Organization Certification of ISO9000 Duration (years)	0.350
There is an increase in teamwork efficiency * Gender	0.457
There is an increase in teamwork efficiency * Designation	1.000
There is an increase in teamwork efficiency * Organization type	0.859
There is an increase in teamwork efficiency * Organization Certification of ISO9000 Duration (years)	0.537
Operating efficiency is enhanced * Gender	1.000
Operating efficiency is enhanced * Designation	0.811
Operating efficiency is enhanced * Organization type	0.900
Operating efficiency is enhanced * Organization Certification of ISO9000 Duration (years)	0.300
There is an increase in employee morale and cohesiveness * Gender	0.904
There is an increase in employee morale and cohesiveness * Designation	0.698
There is an increase in employee morale and cohesiveness * Organization type	0.125
There is an increase in employee morale and cohesiveness * Organization Certification of ISO9000 Duration (years)	0.670
There is an increase in the employees' ability to solve problems * Gender	0.358

There is an increase in the employees' ability to solve problems * Designation	0.851
There is an increase in the employees' ability to solve problems * Organization type	0.223
There is an increase in the employees' ability to solve problems * Organization Certification of ISO9000 Duration (years)	0.202
There is an increase in employees' service attitude * Gender	0.525
There is an increase in employees' service attitude * Designation	0.961
There is an increase in employees' service attitude * Organization type	0.402
There is an increase in employees' service attitude * Organization Certification of ISO9000 Duration (years)	0.200
There is an increased in enhanced market share * Gender	0.939
There is an increased in enhanced market share * Designation	0.510
There is an increased in enhanced market share * Organization type	0.006
There is an increased in enhanced market share * Organization Certification of ISO9000 Duration (years)	0.014
There is an increase in market share of new products * Gender	0.197
There is an increase in market share of new products * Designation	0.524
There is an increase in market share of new products * Organization type	0.009
There is an increase in market share of new products * Organization Certification of ISO9000 Duration (years)	0.291
The organization effectively promotes corporate culture * Gender	0.330
The organization effectively promotes corporate culture * Designation	0.062
The organization effectively promotes corporate culture * Organization type	0.225
The organization effectively promotes corporate culture * Organization Certification of ISO9000 Duration (years)	0.761
Corporate goals are more compliant with social needs * Gender	0.829
Corporate goals are more compliant with social needs * Designation	0.482
Corporate goals are more compliant with social needs * Organization type	0.035

Corporate goals are more compliant with social needs * Organization Certification of ISO9000 Duration (years)	0.031
The ability to fast-modify product design is enhanced * Gender	0.838
The ability to fast-modify product design is enhanced * Designation	0.328
The ability to fast-modify product design is enhanced * Organization type	0.939
The ability to fast-modify product design is enhanced * Organization Certification of ISO9000 Duration (years)	0.397
There is an improvement in new product development * Gender	0.574
There is an improvement in new product development * Designation	0.875
There is an improvement in new product development * Organization type	0.900
There is an improvement in new product development * Organization Certification of ISO9000 Duration (years)	0.646
There is an improvement in price competition of products * Gender	0.083
There is an improvement in price competition of products * Designation	0.025
There is an improvement in price competition of products * Organization type	0.360
There is an improvement in price competition of products * Organization Certification of ISO9000 Duration (years)	0.148
The organization effectively promotes corporate reputation and image * Gender	0.234
The organization effectively promotes corporate reputation and image * Designation	0.740
The organization effectively promotes corporate reputation and image * Organization type	0.540
The organization effectively promotes corporate reputation and image * Organization Certification of ISO9000 Duration (years)	0.168
The sales growth rate is enhanced * Gender	0.938
The sales growth rate is enhanced * Designation	0.488
The sales growth rate is enhanced * Organization type	0.027
The sales growth rate is enhanced * Organization Certification of ISO9000 Duration (years)	0.501
There is an increase in profitability * Gender	0.576

There is an increase in profitability * Designation	0.977
There is an increase in profitability * Organization type	0.218
There is an increase in profitability * Organization Certification of ISO9000 Duration (years)	0.420
There is an increase in repeat purchase * Gender	0.468
There is an increase in repeat purchase * Designation	0.592
There is an increase in repeat purchase * Organization type	0.106
There is an increase in repeat purchase * Organization Certification of ISO9000 Duration (years)	0.823

NOTE: \* no significant association between variables ( $p > 0.05$ ).

#### 4.9 Correlations and relationships between variables

A bivariate correlation to indicate a direct or indirect proportional relationship between the variables was performed. Positive values indicate a directly proportional relationship between the variables, and an inverse relationship indicates a negative value. All notable relationships are marked with a \* or \* \*.

The correlation value between “Product/ service costs is reduced” and “Operating efficiency is enhanced” is 0.392. This is a directly related proportionality. Respondents indicated that the more costs are reduced, the more operating efficiencies would be strengthened, and vice versa.

Correlation between “Operating efficiency is enhanced” and “Improved product quality” is 0.461. Respondents indicated that the more the operating efficiency was enhanced the more product quality improved, vice versa.

“Improved product quality” and “Customer satisfaction is improved” is 0.437. Respondents indicated that the more the product quality was improved the greater the customer satisfaction

“Customer satisfaction improved” and “Increase in repeat purchases” is 0.347. Respondents indicated that due to customer satisfaction there was increase in repeat purchase of the product/ service.

“Increase in repeat purchase” and “Increase in profitability” is 0.827. Respondents implied that because of the increase in repeat purchase there was an increase in profitability.

“Increase in profitability” and “Increased in market share” is 0.697. Respondents indicated that the more the profitability increases the more the market share increases.

#### **4.7 Chapter summary**

In this chapter, the ISO9000 accredited companies with respect to the characteristics of the success indicators were assessed, in form of frequencies, chi square tests, fisher's tests, section analysis, cross tabulations using the SPSS data analysis. It was expected that there would be a higher level of agreement and strong agreement for the performance measures than disagreement. However, there was a substantial number of respondents who were undecided. From the variables tested. EM13, 14 and 15 had unusually high respondents who were in sharp contrast with the claims. The Fisher's Exact Test was used to define the relationship between the biographical data and the variables of operational efficiency. It was established that the operational performance variables had a significant relationship with mostly the organization certification of ISO9000 duration (years) and organization type biographical data.

## **CHAPTER 5**

### **DISCUSSIONS**

#### **5.1 Introduction**

This chapter discussed the key findings obtained from the questionnaires. The questionnaire was the primary method used to gather data and was distributed to accredited ISO9000 businesses. SPSS version 25.0 was used to analyse the data obtained from the respondents.

#### **5.2 Demographic**

Nearly 6 out of every ten respondents were quality managers with a fifth each of general managers and unspecified other ( $p < 0.001$ ). Almost 60 % of the respondents were quality managers and a merely 1.6 % made up the responses from managing directors.

A quarter of the organizations had certification for a maximum of 3 years, with three quarters having had certification for more than 4 years ( $p = 0.035$ ).

#### **5.3 Evaluation of ISO9000 certification effect on organization and business performance**

The following patterns were observed:

- All statements display (significantly) higher levels of agreement while other levels of agreement were lower (but still higher than levels of disagreement).
- There were no statement with higher level of disagreement.

Cost reduction C1 and C2 showed an agreement of 46.8% and 64.5% respectively. In this study, more than 50% of the respondents agreed that ISO9000 implementation reduces production cost of the company. According to Beattie and Sohal (1999), one of the main benefits in implementing ISO9000 is the reduction of production costs. Naveh and Marcus (2005), concluded that ISO9000 relates positively to organizational efficiency, which was in alignment with P3 with a 64.5% level of agreement. Quality improvement Q14 and Q15 showed an agreement level of over 50% each. This was an indication that there was a strong agreement that there was improvement in product/service quality and reduction in product/ service

variation and defect. Van der Wiele and Brown (1997), Elmuti (1996) and Lee et al., (2009) concluded that ISO9000 implementation improved product quality.

Customer satisfactions S6, CS7 and CS8; showed an agreement level of 58.1%, 66.1% and 50.0% respectively which indicated the majority agreed that customer satisfaction after ISO9000 has improved. This collaborates with Sun (2000), ISO 9000 (2016), and Su et al., (2008) concluded that customer satisfaction improved and it is one of the main objectives of ISO9000.

Internal procedures IP9, IP10, IP11 and IP12; the majority of the respondents were either in agreement (62.9%, 56.6%, 50.0%, 51.6%) or strong agreement (27.4%, 27.4%, 33.9% and 32.9%) respectively. In this study, more than 50% of the respondents agreed that ISO9000 improves internal and operating efficiency. This was in accordance with Augustyn and Pheby (2000) who claimed that ISO9000 reduced waste required less rework to be done and improved internal processes and operating efficiency. Santos and Eccanciano (2002) showed that it improved the internal efficiency.

Employee morale EM13, EM14 and EM15; showed an agreement level of 32.3%, 36.1% and 42.6% respectively. In this study, less than 50% of the respondents agreed to employee morale. The findings of Van der Wiele and Brown (1997), Highlands (1995) and Elmuti (1996) stated that quality awareness, problem solving, quality of the product and standard of work-life were enhanced due to ISO9000. Even though, the majority of the respondents were in agreement with the improvement in employee morale, employee morale saw a growing number of respondents who strongly disagreed or disagreed with a small number of respondents who were undecided on certification raising employee morale. This could be due to the motivation of gaining certification. Previous studies reported that most companies seek certification for external reasons as compared with internal reasons (Jang and Lin, 2007). It was stated by Chummun and Gaffar (2018) that if organizational culture and employees were engaged, it creates excitement among employees which in turn improves the organization efficiency and leads to the improvement in employee attitude and behaviour. However, it was concluded that most companies only concern themselves with certification due to marketing strategy and external pressure (Singels et al., 2001; Acharya and Ray, 2000; Bhuiyan and Alam, 2005).

There tends to be a clear link between the drive behind the businesses to achieve ISO9000 certification and the subsequent outcomes. When companies mainly gain certification due to external pressure, they might gain the standard by achieving its minimal requirements and

therefore achieve its limited internal performance improvement (Sampaio et al., 2011). Employee morale had an unusually high level of ‘strongly disagree’, ‘disagree’ and ‘undecided’, the limitation of this study was no report on the effect of the motivation for gaining of the ISO9000 certification and how it affects the operational performance and business performance of the companies.

Market share MS16 and MS17; the majority of the population were either in agreement (28.0% and 33.9%) or strong agreement (38.7 and 33.9) respectively. This showed that over 50% of the respondents agreed that ISO9000 increases market share. Similarly, Hendricks and Singhal (1996) and Elmuti (1996) concluded that ISO9000 increases market share. Corporate Image CI18 and CI19; are both in agreement with a percentage reading of over 40% each.

Competitive advantage CA20, CA21, CA22 and CA23; majority of the respondents were in agreement with a percentage reading of over 40% each. Srivastava (2001) concluded that effective quality management improves the competitive advantage including better business performance, Elmuti (1996) mentioned that ISO9000 certified companies had a better competitive edge as opposed to non-certified companies.

Organizational profit OP24, OP25 and OP26; 40.3%, 41.9% and 48.4% respondents respectively were in agreement and 32.3%, 32.3% and 33.9% respondents respectively were in strong agreement. This showed that financial performance improved after ISO9000 certification. Corbett *et al.*, (2005), Handfield *et al.*, (1998) and Yahya and Goh (2001) found that the financial performance improved after ISO9000 certification.

#### **5.4 Relationships between the variables**

The statistical significance of the relationship between the variables were discussed as indicated by p-values  $> 0.05$  (no significant difference) and p-values  $< 0.05$  (significant difference).

The p-value between “There is an improvement in product quality” and “Organization Certification of ISO9000 Duration (years)” is 0.020. This points out that there is a notable relationship between the variables. That is, number of years the certification did play a notable role with regard to improvement in product quality.



The p-value between "There is a reduction in the variation and defect in production / service" and "ISO9000 Duration Organization Certification (years)" is 0.023. This indicated that there is a significant relationship between the variable. The number of years of qualification played a part in minimizing variability and defects in the product / service.

The p-value between "Customer satisfaction is improved" and "Organization type" is 0.012. This was indication that the type of organization played a role in customer satisfaction.

The p-value between "Improved Customer Satisfaction" and "ISO9000 Duration Organization Certification (years)" is 0.038. This showed that there was a notable relationship between variables and that the number of years plays a role in improving customer satisfaction.

The p-value between "There is a reduction in customer complaints" and Organization Certification of ISO9000 Duration (years)" is 0.044 indicating the notable relationship between the number of years of certification and the reduction in customer complaints

The p-value between "Current customer retention rate is enhanced" and "Organization form" is 0.002. This indicates that there was a significant relationship between the variables and that the form of company plays a part in current customer retention rate.

The p-value between "Process standardization and systemization are improved" and "Organization Certification of ISO9000 Duration (years)" is 0.041. This showed that there was a significant difference between the number of years of certification and the improvement in process standardization and systemization.

The p-value between "There is an increased in enhanced market share" and "Organization type" is 0.006. This showed that the organization type plays a significant role in the enhancement of market share.

The p-value between "There is an increase in enhanced market share" and "ISO9000 Duration Organization Certification (years)" is 0.014. This implied a significant relationship between the number of years of certification and market share enhancement.

The p-value between "There is an increase in market share of new products" and "Organization type" is 0.009. This indicated that organization type plays a role in the increase in market share of new products.

The p-value between “Corporate goals are more compliant with social needs” and “Organization type” is 0.035. This indicated that there was a significant relationship between organization type and the compliance of corporate goals with social needs.

The p-value between “Corporate goals are more compliant with social needs” and “Organization Certification of ISO9000 Duration (years)” is 0.031. This indicated that the number of years of certification plays a role in the compliance of corporate goals with social needs.

The p-value between "There is an improvement in product price competition" and "Designation" is 0.025, indicating a significant relationship exists between product price competitiveness and designation.

### **5.5 Chapter Summary**

Based on the above discussion of the results and findings, it is apparent that the findings of this current study is similar to the findings of the previous research which have been consistent with the benefits of the ISO9000 standard. The present study responds to the different dimensions associated with ISO9000 in relation to the operational and business performances. The present study is conducted in the area of ISO9000 certified organizations. SPSS statistical data analysis was used for the analysis of data. There is a significant difference between agreeing to the benefits of the standard than disagreeing. It is therefore evident from the results of the present study that the ISO9000 norm adds value to the organizational and business success of organizations

## **CHAPTER 6**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **6.1 Introduction**

The preceding chapter presented and discussed the key findings of the research. This present chapter provides the conclusions and recommendations drawn from the research findings.

#### **6.2 Conclusion**

Implementation of the ISO9000 standard, the degree of achievement of the standard goals and their efficacy has been an essential topic of research for many years. Authors have not yet reached a consensus on the standards effectiveness regarding its impact on the companies' operational and business performance. This present study concluded that the ISO9000 implementation has benefits and a positive impact on the companies operational and business performance such as the reduction of costs, improvement of product quality, customer satisfaction, improvement of internal procedures, the market share and the rise in income are all factors which have been validated and endorsed by the methodological structure suggested in this study. Non- certified organizations should take advantage of this study conducted on ISO9000 certified organizations in order to use the ISO9000 standard as a tool for managing and increasing the quality of products and services, customer satisfaction is increased and non-conformities and defects in their services and goods are decreased.

#### **6.3 Implications of this research**

This research will resolve literature gaps by analyzing the impact of ISO9000 on organizational performance where it is applicable to obtaining or renewing certification. This paper will expand and contribute to existing literature and the results will bring clarity to the contradictory literature that exist on the effectiveness of ISO9000 certification and give clarity to those companies that are unsure about gaining the ISO9000 certification or the renewal thereof.

#### **6.4 Limitations of the Study**

1. The business selection is limited to Gauteng ISO9000 certified companies, and does not include ISO9000 certified companies in other South African provinces.
2. This study shows the positive effect of ISO9000 on the organizational performance of companies; however, it did not reflect the effect of the motivation behind the implementation thereof. As in theory states the increase in paperwork, time consumption

and the expenses related to the implementation of ISO9000 that could relate to be the factors that contributed to the high level of disagreement in employee morale.

3. In addition, there was a possibility that the data collected reflect the subjective views of quality client members, biased responses may be a problem in this study. Furthermore, the statistical analysis of the sample has not been contrasted with non-certified companies, as this was not a comparative study. This study did not focus on the motivation for the implementation of ISO9000 standard and how motivation affects the organizational outcome. Time was one of the biggest concerns during the research as it took too long for respondents to return the questionnaire, numerous calls had to be made as a reminder

### **6.5 Recommendations for future studies**

Future study studies can be directed through South Africa on a larger number scale (Quazi *et al.*, 2002) of certified companies, and responses from more than one representative per company could be made to eliminate prejudice, and statistics could be contrasted with non-certified companies (Psomas and Kafetzopoulos, 2014). More studies can be undertaken to determine the cost implications of the initial adoption of the standard and its burdensome documentation associated with the standard. Meyer (1998) stated, "Many say ISO's exacting documentation requirements consume time. Indeed, there are horror stories about companies losing substantial business because a documentation obsession redirected their priorities."

Future empirical and conceptual research and development: the researcher should consider a broader range of factors that examine their effects such as industry type, existing quality systems and organization size (Jang and Lin, 2008). It is worth examining the motivation for the implementation of ISO9000 and how it affects organizational performance and the incorporation of the standard whether external or internal factors (Sampaio *et al.*, 2011). Future studies should also be undertaken using business evidence regarding the documentation related to ISO9000 (Psomas, 2013), Finally, even though this study was based mainly on the statistical significance of the variables tested, different scales should be applied in different sectors and where improvements are expected, new researchers should focus on reasons why no improvement was observed (Ilkay and Aslan, 2012) The results proposed in this study many be conditioned by the specific characteristics of the sectors.

## **6.6 Chapter summary**

The ISO9000 certificate does play an important role in the performance dimensions measured in this study namely: Operational and business performance was improved after certification. The standard directly relates to conformance of a documented process which gives perspective and perception of the different aspects related to the ISO9000 standard. Conformance to these processes relates to the positive effect of the quality of a service rendered or product manufactured. This is indicated as most of the respondents agreed thereof, and agreed by previous studies Psomas and Pantouvakis (2015), Psomas and Kafetzopoulos (2014), Psomas et al. (2013), Elmuti (1996), Kazilunas (2010) and Sharma (2005).

## REFERENCES

1. Acharya, U.H. and Ray, S. (2000), "ISO 9000 certification in Indian industries: a survey", *Total Quality Management*, Vol. 11 No. 3, pp. 261-6.
2. Arauz, R. and Suzuki, H. (2004), "ISO 9000 performance in Japanese industries", *Total Quality Management and Business Excellence*, Vol. 15 No. 1, pp. 3-33.
3. Augustyn, M.M. and Pheby, J.D. (2000), "ISO 9000 and performance of small tourism enterprises: a focus on Westons Cider Company", *Managing Service Quality*, Vol. 10 No. 6, pp. 374-88.
4. Beattie, K.R. and Sohal, A.S. (1999), "Implementing ISO 9000: a study of its benefits among Australian organizations", *Total Quality Management*, Vol. 10 No. 1, pp. 95-106.
5. Bhuiyan, N. and Alam, N. (2005), "An investigation into issues related to the latest version of ISO 9000", *Total Quality Management and Business Excellence*, Vol. 16 No. 2, pp. 199-213.
6. Boiral, O. (2012), "ISO 9000 and Organizational Effectiveness: A Systematic Review", *The Quality Management Journal*, Vol. 19 No. 3, pp. 16-37.
7. Buttle, Francis. (1997), "ISO 9000: Marketing Motivations and Benefits." *International Journal of Quality and Reliability Management*.
8. Cândido, C.J.F., Coelho, L.M.S., and Piexinho, R.M.T. (2016), "The financial impact of a withdrawn ISO9001 certificate", *Journal of Operation and Production Management*, Vol. 36 No. 1, pp. 23-41.
9. Chi, T., Kilduff, P.P.D. and Gargeya, V.B. (2009), "Alignment between business environment characteristics competitive priorities. Supply chain structures and firm business performance", *International Journal of Productivity and Performance Management*, Vol. 58 No. 7, pp. 645-669.
10. Chummun, B. Z., (2019). Environmental Performance in the Waste Management Industry of Africa. International Publisher of Information Science and Technology Research (pp. 278-305)

11. Chummun, B. Z., & Gaffar, K. (2018). A review of factors influencing environmental performance: A quantitative analysis of the waste industry in KwaZulu-Natal, *Journal of Contemporary Management*, Vol 15 No. 1, pp. 1-25.
12. Chummun, B. Z., & Gaffar, K. (2018). Factors that Influence Environmental Performance in the Waste Management Industry in KwaZulu-Natal. In 12<sup>th</sup> International Business Conference Proceedings (pp. 1-17). Le Meridian, Mauritius: Academic Press.
13. Conti, T. (2004), "How to conceptually harmonize ISO 9000 certification, levels of excellence recognition and real improvement", *Total Quality Management*, Vol.15 Nos5/6, pp. 66577.
14. Cohen L, Manion L , Morrison K 2017. *Research methods in education*, routledge.
15. Corbett, C.J., Montes-Sancho, M. and Kirsch, D.A. (2005), "The financial impact of ISO 9000 certification in the United States: an empirical analysis", *Management Science*, Vol. 51 No. 7, pp. 104659.
16. Deci, E.L. (1971), "Effects of externally mediated rewards on intrinsic motivation", *Journal of Personality and Social Psychology*, Vol. 18, pp. 105-15.
17. Elmuti, D. (1996), "World-class standards for global competitiveness: and overview of ISO 9000", *Industrial Management*, Vol. 38 No. 5, pp. 5-9.
18. Feng, M., Terziovski, M. and Samson, D. (2008), "Relationship of ISO 9001:2000 quality system certification with operational and business Performance. A survey in Australia and New Zealandbased manufacturing and service companies", *Journal of Manufacturing Technology Management*, Vol. 19 No. 1, pp. 22-37.
19. Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1995), *Multivariate Data Analysis*, Prentice-Hall, Englewood Cliffs, NJ. 19. Handfield, R., Ghosh, S. and Fawcett, S. (1998), "Quality-driven change and its effects on financial performance", *Quality Management Journal*, Vol. 5 No. 3, pp. 13-30.
20. Hendricks, K.B. and Singhal, V.R. (1996), "Quality awards and the market value of the firm: an empirical investigation", *Management Sciences*, Vol. 42, pp. 415-36.
21. Highlands, R. (1995), "ISO 9000 grows-but is it useful", *Electric Business Buyer*, Vol. 21, p. 20.

22. Heras, I.; Casadeus, M.; Dick, G. (2002). ISO 9000 certification and the bottom line: a comparative study of the profitability of Basque region. *Managerial Auditing Journal*, 17(1): 72–88.
23. Ilkay, M.S. and Aslan, E. (2012), “The effect of the ISO 9001 quality management system on the performance of SMEs”, *International Journal of Quality and Reliability Management*, Vol.29 No. 7, pp. 753-778.
24. ISO (2016), “The ISO survey of ISO 9001 certificates up the end of 2014”, available at: [www.iso.org/iso/survey2014.pdf/](http://www.iso.org/iso/survey2014.pdf/) (accessed 10 June 2016).
25. Islam, M. and Karim, A. (2011), “Manufacturing practices and performance. Comparison among small-medium and large industries”, *International Journal of Quality & Reliability Management*, Vol. 28 No. 1, pp. 43-61.
26. Jang, W. and Lin, C. (2008), “An integrated framework for ISO 9000 motivation, depth of ISO implementation and firm performance”, *Journal of Manufacturing Technology Management*, Vol. 19 No. 2, pp. 194-216.
27. Johnson R.B. and Christensen, L. (2019). *Educational research: Quantitative, qualitative, and mixed approaches*, Sage publications.
28. Judi, H.M., Jenal, R. and Genasan, D. (2011), “Quality Control Implementation in Manufacturing Companies: Motivating Factors and Challenges”, *InTech*, pp. 495508.
29. Kaplan, D.E. (2003), “Measuring our competitiveness – a critical examination of the IMD and WEF competitiveness indicators for South Africa”, *Development Southern Africa*, Vol. 20 No. 1, pp. 75-88.
30. Kaziliūnas, A. (2010), “Success Factors For Quality Management Systems: Certification Benefits”, *Intellectual Economics*, No. 2(8), Pp. 30-38.
31. Lee, P.K.C., To, W.M., & Yu, B.T.W. (2009). The implementation and performance outcomes of ISO 9000 in service organizations. An empirical taxonomy. *International Journal of Quality & Reliability Management*, 26(7), 646–662.
32. Lee, S.F., Paul Roberts, P. and Lau, W.S. (1999). “Survey on ISO 9000 quality management system implementation in Hong Kong”. *anagerial Auditing Journal*, Vol. 14 Iss 1/2 pp. 79 – 88.



33. Lima, M.A., Resende, M. and Hasenclever, I. (2000), "Quality certification and performance of Brazilian firms: an empirical study", *International Journal of Production Economics*, Vol. 66 No. 2, pp. 143-147.
34. Lofgren, M., Witell, L. and Gustafsson, A. (2008), "Customer satisfaction in the first and second moments of truth", *Journal of Product & Brand Management*, Vol. 17 No. 7, pp. 463-474.
35. Maani, K., Putterill, M. and Sluti, D. (1994), "Empirical analysis of quality improvement in manufacturing", *International Journal of Quality & Reliability Management*, Vol. 11 No. 7, pp. 19-37.
36. Marin, L.M. and Ruiz-Olalla, M.C. (2011), "ISO 9000:2000 certification and business results", *International Journal of Quality & Reliability Management*, Vol. 28 No. 6, pp. 649-661.
37. Meyer, Harvey R. (1998), "Small Firms Flock to Quality System." *Nation's Business*.
38. Michaela M. C.; Lorente M.; Rafael A. (2007). ISO 9000:2000: Key to quality? An exploratory study. *Quality Management Journal*, 14(1): 7–18.
39. Musa, P.; Ceyhun, O. (2007).The long-term impact of ISO 9000 certification on business performance: a longitudinal study using Turkish stork market returns. *Quality Management Journal*, 14(1): 21–36.
40. Naveh, E. and Marcus, A. (2005), "Achieving competitive advantage through implementing a replicable management standard: installing and using ISO 9000", *Journal of Operations Management*, Vol. 24 No. 1, pp. 1-26.
41. Nunnally, J. (1978), *Psychometric Theory*, McGraw-Hill, New York, NY.
42. Ochieng, J., Muturi, D. and Njihia, S.N. (2015), "The impact of ISO9001 implementation on organizational performance in Kenya", *The Total Quality Management Journal*, Vol. 27 No. 6, pp. 761-771.
43. Psomas, E.L. (2013), " The effectiveness of the ISO9001 quality management system in service companies", Vol. 24 No. 7, pp. 769781.

44. Psomas, E. and Kafetzopoulos, D. (2014), "Performance measures of ISO 9001 certified and non-certified manufacturing companies", *Benchmarking: An International Journal*, Vol. 21 No. 5, pp. 756-774.
45. Psomas, E. and Pantouvakis, A. (2015), "ISO 9001 overall performance dimensions: an exploratory study", *The Total Quality Management Journal*, Vol. 27 No. 5, pp. 519-531.
46. Psomas, E.L., Pantouvakis, A. and Kafetzopoulos, D.P. (2013), "The impact of ISO 9001 effectiveness on the performance of service companies", *Managing Service Quality*, Vol. 23 No. 2, pp. 149-164.
47. Quazi, H.A., Hong, C.W. and Meng, C.T. (2002), "Impact of ISO 9000 certification on quality management practices: a comparative study", *Total Quality Management*, Vol. 13 No. 1, pp. 53-67.
48. Rahman, S. (2001), "Total quality management practices and business outcome: evidence from a small and medium enterprises in Western Australia", *Total Quality Management*, Vol. 12 No. 2, pp. 35-49.
49. Ramdass, K.R, Nemavhola. F. (2018). Cost implications of the ISO 9001 quality management system in South African manufacturing organisations. *South African Journal of Industrial Engineering*, 29: 16-27.
50. Sampaio, P., Saraiva, P. and Rodrigues, A.G. (2011), "The economic impact of quality management systems in Portuguese certified companies. Empirical evidence", *International Journal of Quality and Reliability Management*, Vol. 28 No. 9, pp. 929-950.
51. Santos, L. and Escanciano, C. (2002), "Benefits of the ISO9000:1994 system", *International Journal of Quality & Reliability Management*, Vol. 19 No. 3, pp. 321-44.
52. Saunders M, Lewis P , Thornhill A 2009. *Research methods for business students*, Pearson education.
53. Sharma, D.S. (2005), "The association between ISO 9000 certification and financial performance", *The International Journal of Accounting*, Vol. 40 No. 2, pp. 151-72.
54. Sharma, M. and Kodali, R. (2008), "TQM implementation elements for manufacturing excellence", *The TQM Magazine*, Vol. 20 No. 6, pp. 599-621. 37. Singh, P.J. (2008),

55. Singh, P. (2008), "Empirical assessment of ISO 9000 related management practices and performance relationships", *International Journal of Production Economics*, Vol. 113 No. 1, pp. 40-59.
56. Singels, J., Rue "l,G.and vande Water,H.(2001), "ISO 9000series – certification and performance", *International Journal of Quality & Reliability Management*, Vol. 18 No. 1, pp. 62-75.
57. Srivastav, A.K. (2011), "ISO 9000 as an organization development intervention", *The TQM Journal*, Vol. 23 No. 3, pp. 313-325.
58. Su, Q., Li, Z., Zhang, S.X., Liu, Y.Y. and Dang, J.X. (2008), "The impacts of quality management practices on business performance. An empirical investigation from China", *International Journal of Quality & Reliability Management*, Vol. 25 No. 8, pp. 809-823.
59. Sun, H. (2000), "Total quality management. ISO 9000 certification and performance improvement", *International Journal of Quality & Reliability Management*, Vol. 17 No. 2, pp. 168-79.
60. Terziovski, M.; Power, D. (2007). Increasing ISO 9000 certification benefits: a continuous improvement approach. *International Journal of Quality and Reliability Management*, 24(2): 141–163.
61. To, W.M., Lee, P.K.C., & Yu, B.T.W. (2011). ISO 9001:2000 implementation in the public sector. A survey in Macao SAR, the People's Republic of China. *The TQM Journal*, 23(1), 59–72.
62. Tsekouras, K., Dimara, E. and Skuras, D. (2002), "Adoption of a quality assurance scheme and its effects on firm performance: a study of Greek Firms implementing ISO 9000", *Total Quality Management*, Vol. 13 No. 6, pp. 827-41.
63. Van der Wiele, T. and Brown, A. (1997), "ISO 9000 series experiences in small and medium-sized enterprises", *Total Quality Management*, Vol. 8 Nos 2/3, pp. 300-4.
64. Wayhan, V. B., Kirche, E. T. and Khumawala, B. M. (2002). ISO 9000 certification: The financial performance implications. *Total Quality Management*, 13, pp. 217-231.
65. Yahya, S. and Goh, W.K. (2001), "The implementation of an ISO 9000 quality system", *International Journal of Quality & Reliability Management*, Vol. 18 No. 9, pp. 941-66.

66. Yin RK 2017. Case study research and applications: Design and methods, Sage publications.

# APPENDIX 1

## LETTER OF INTRODUCTION



### LETTER OF INFORMATION

**Title of the Research Study:** The impact of ISO9000 certification on organizational performances in Gauteng.

#### **Brief Introduction and Purpose of the Study:**

Despite the numerous studies on ISO9000 and the increasing number of certified companies around the world, authors have still not reached a unanimous decision on the effects of the ISO9000 Quality Management System in organizations.

The purpose of this study is to investigate the effectiveness of ISO9000 on organizational performance.

#### **Outline of the Procedures:**

For this study questionnaire-based data will be collected from ISO9000 certified companies. The questionnaire will consist of 2 parts, in the first part questions will be asked to measure the company's operational performance and in the second part questions will be asked to measure the organizations business performance.

Two follow up emails will be sent four weeks after the initial emailing, items will be measured using the five-point Likert scale.

This paper will expand and contribute to existing literature and the results will bring clarity to the contradictory literature that exist on the effectiveness of ISO9000 certification.

**Benefits:**

The participants' responses will contribute to this academic research and results can lead to publications.

The conclusions from this study will assist business managers who are disinclined to implement or maintain a standard whose benefits are unclear.

**Confidentiality:**

Confidentiality is important in this study for the protection of the participants. Confidentiality in this study will be ensured by direct delivery and receipt of the questionnaires between the researcher and the participant. The information provided by the participant will be treated with the utmost confidentiality.

**Persons to Contact in the Event of Any Problems or Queries:**

The Institutional Research Ethics Administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or [dvctip@dut.ac.za](mailto:dvctip@dut.ac.za).

**General:**

Potential participants must be assured that participation is voluntary and the approximate number of participants to be included should be disclosed. A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g. isiZulu.

## APPENDIX 2

### LETTER OF INFORMED CONSENT



#### CONSENT

##### **Statement of Agreement to Participate in the Research Study:**

- I hereby confirm that I have been informed by the researcher, Chrissal Vadivalu about the nature, conduct, benefits and risks of this study -  
Research Ethics Clearance Number: 227/16FREC,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

\_\_\_\_\_

**Full Name of**                      **Date**      **Time**                      **Signature/ Right**

**Thumbprint**

**Participant**

I,      Chrissal  
 Vadivalu  
 herewith

confirms that \_\_\_\_\_

the above  
 participant has

**Full Name of Researcher**

**Date**

**Signature**

been fully  
 informed about

the nature,

conduct and \_\_\_\_\_

risks of the  
 above study.

**Full Name of Witness (If applicable)**

**Date**

**Signature**

*Please note the* \_\_\_\_\_

*following:*

**Full Name of Legal Guardian (If applicable) Date**

**Signature**

Research details must be provided in a clear, simple and culturally appropriate manner and prospective participants should be helped to arrive at an informed decision by use of appropriate language (grade 10 level - use Flesch Reading Ease Scores on Microsoft Word), selecting of a nonthreatening environment for interaction and the availability of peer counseling (Department of Health, 2004)



If the potential participant is unable to read/illiterate, then a right thumb print is required and an impartial witness who is literate and knows the participant (e.g. parent, sibling, friend, pastor, etc.) should verify in writing, duly signed, that informed verbal consent was obtained (Department of Health, 2004).

If anyone makes a mistake completing this document e.g. wrong date or spelling mistake, a new document has to be completed. The incomplete original document has to be kept in the participant file and not thrown away and copies thereof must be issued to the participant.

**References:**

Department of Health: 2004. *Ethics in Health Research: Principles, Structures and Processes*  
<http://www.doh.gov.za/docs/factsheets/guidelines/ethnics/>

Department of Health. 2006. *South African Good Clinical Practice Guidelines*. 2nd Ed.  
Available at: [http://www.nhrec.org.za/?page\\_id=14](http://www.nhrec.org.za/?page_id=14)

**APPENDIX 3**  
**ETHICAL CLEARANCE APPROVAL**



**MANAGEMENT SCIENCES: FACULTY RESEARCH**

**ETHICS COMMITTEE**

**(FREC)**

5 April 2018

Student No: 21024115

FREC REF: 227/16FREC

Dear Ms C Vadivalu

**MASTER OF PHILOSOPHY: QUALITY**

**TITLE: THE IMPACT OF ISO9000 CERTIFICATION ON ORGANIZATIONAL PERFORMANCES IN GAUTENG**

Please be advised that the FREC Committee has reviewed your proposal and the following decision was made: **Ethical Level 1**

**Date of FRC Approval: 30 November 2016**

Approval has been granted for a period of two years from the above FRC date, after which you are required to apply for safety monitoring and annual recertification.

Please use the form located at the Faculty. This form must be submitted to the FREC at least 3 months before the ethics approval for the study expires.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the FREC according to the FREC SOP's.

Please note that ANY amendments in the approved proposal require the approval of the FREC as outlined in the FREC SOP's.

Yours Sincerely

---

Prof JP Govender

Deputy Chairperson: FREC

## **APPENDIX 4**

### **GATEKEEPERS PERMISSION**

2 April 2020

To All ISO9001 Accredited organizations in Gauteng

---

Request for Permission to Conduct Research

Dear CEO/Quality Manager

My name is Chrissal Vadivalu, Master in Philosophy: Quality Management student at the Durban University of Technology. The research I wish to conduct for my Masters dissertation; involves “The influence of ISO9001 certification on organizational performances of manufacturing and service providers in Gauteng”.

I am hereby seeking your consent to conduct an electronic survey addressed to either the CEO, Quality Manager or any other Manager involved in the Quality of the organization.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent forms to be used in the research process, as well as a copy of the approval letter which I received from the Institutional Research Ethics Committee (IREC).

If you require any further information, please do not hesitate to contact me on Cell: 083 531 9967, Email: chrissalv001@gmail.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Chrissal Vadivalu

Durban University of Technology

**APPENDIX 5**  
**QUESTIONNAIRE USED TO CONDUCT THE**  
**RESEARCH**

**QUESTIONNAIRE:**

This study will attempt to investigate the impact of ISO9001 certification on organizational performances in Gauteng. The information provided by the participant will be treated with the utmost confidentiality. The questionnaire results will be analyzed for academic purposes.

Thank you for your kind cooperation in the conduct of this study, your responses will contribute to this academic research.

**PERSONAL PROFILE**

Directions: Please provide the following information either by filling in the data or marking in suitable checks in boxes with an (X)

Name (Optional): \_\_\_\_\_

Title:

Mr.	Mrs.	Miss	Other (If other please specify)

Designation:

CEO	Managing Director	General Manager	Quality Manager	Other (If other please specify)

Organization type:

Service	Manufacturing	Other (If other please specify)

Organization Certification of ISO9000 Duration:

0 years	1-3 years	4-6 years	7-9 years	10+ years

Directions: Please provide the following information by marking in suitable checks in boxes with an (X)

1- Strongly Disagree, 2- Disagree, 3- Undecided, 4- Agree, 5- Strongly Agree							
<b>PART A</b>		<b>OPERATIONAL PERFORMANCE AFTER ISO9001 CERTIFICATION</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>ITEMS</b>	<b>QUESTION</b>						
	1	Product/ service costs are reduced					

Cost Reduction	2	The return on goods/services is reduced						
Productivity	3	There is an improvement in operational efficiency and productivity						

Quality Improvement	4	There is an improvement in product quality						
	5	There is a reduction in production/service variation and defect						
Customer Satisfaction	6	Customer satisfaction is improved						
	7	There is a reduction in customer complaints						
	8	The retaining rate of existing customers is improved						
Internal Procedures	9	Process standardization and systemization are improved						
	10	Performance of internal transfer is improved						
	11	There is an increase in teamwork efficiency						
	12	Operating efficiency is enhanced						

Employee Moral	13	There is an increase in employee's morale and cohesiveness						
	14	There is an increase in the employees' ability to solve problems						
	15	There is an increase in employees' service attitude						
<b>PAR T B</b>		<b>BUSINESS PERFORMANCE AFTER ISO9001 CERTIFICATION</b>						
Market Share	16	There is an increase in enhanced market share						
	17	There is an increase in market share of new products						
Corporate Image	18	The organization effectively promotes corporate culture						
	19	Corporate goals are more compliant with social needs						
Competitive Advantage	20	The ability to fast-modify product design is enhanced						
	21	There is an improvement in new product development						
	22	There is an improvement in price competition of products						



	23	The organization effectively promotes corporate reputation and image					
Organizational Profit	24	The sales growth rate is enhanced					
	25	There is an increase in profitability					
	26	There is an increase in repeat purchase					