A FRAMEWORK TO FACILITATE TOTAL QUALITY MANAGEMENT IMPLEMENTATION IN THE UPSTREAM OIL INDUSTRY: AN IRAQI CASE STUDY

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Dedication

To my everlasting love my wife Nada and my beloved children Mohammed, Maryam and Hameed.

Abbreviations

TQM	Total Quality Management
MBNQA	Malcolm Baldrige National Quality Award
EFQM	European Foundation for Quality Management
PDCA	Plan, Do, Check and Act
IDC	Iraqi Drilling Company
OEC	Oil Exploration Company
ISO	International Standardisation Organisation
QHSE	Quality, Health, Safety and Environment
PCLD	Petroleum Contracting and Licencing Directorate
TSC	Technical Service Contracts
PDC	Production Development Contracts
PSC	Production Sharing Contract

Declaration

This thesis is submitted to the University of Salford rules and regulations for the award of a PhD degree by research. While the research was in progress, some research findings were published in refereed conference papers prior to this submission (refer to Appendix E).

The researcher declares that no portion of the work referred to in this thesis has been submitted in support of an application for another degree of qualification of this, or any other university or institution of learning.

Abbas Abdulhameed Aletaiby

Abstract

Currently, there is worldwide interest in and focus on the implementation and effectiveness of quality management initiatives in various industries with the objective of enhancing effectiveness and efficiency. By raising performance, Total Quality Management (TQM) is a quality management model, which can have a transforming impact on an industry that is in a state of substantial structural change and facing increased competition. Therefore, there is no doubt that TQM has received a great deal of attention from practitioners, academics and researchers over recent decades across the world in both developed and developing countries. However, Iraq as a developing country is still lagging behind on the TQM journey. The Iraqi oil companies constitute the main industrial structure in Iraq, as oil is the main source of income in the country. However, these companies are facing a number of challenges including decreasing performance and quality levels, particularly in management systems. In addition, they are challenged by increasing competition from international companies working in Iraq. In order to face these challenges and increase their efficiency and competitiveness, Iraqi oil companies need to successfully employ quality management initiatives such as TQM, which can enable and empower the entire workforce, raise performance and improve their competitive position. Hence, the current research into TQM as a means of improving the efficiency and the entire performance of operations in Iraqi oil companies.

The aim of this study is to develop a framework to facilitate the implementation of TQM in the Iraqi upstream oil sector. This entailed a review of issues relevant to TQM in general and an exploration of the current levels of awareness of TQM in the oil company by identifying the presence or absence of certain recognised TQM key factors and barriers impede TQM implementation as well as the expected benefits to be gained from TQM implementation. This framework will facilitate the oil company to adopt better practices towards achieving the expected results.

To achieve this aim, the study utilises a mixed research approach and adopting a single holistic case study strategy by triangulating the data collected through different techniques (semi-structured interviews, questionnaire survey and literature review). Data was collected from one of the most significant oil company in Iraq. Descriptive and inferential statistical analysis in addition to content analysis methods were used to analyse the data. To the best of the researcher's knowledge, this study will be the first of its kind to be undertaken in the Iraqi oil industry. Therefore, the findings will enrich the existing literature on the TQM

implementation in the oil industry and fill the gaps in knowledge of studies on Iraq, where there is no national framework for a universal TQM implementation in the Iraqi oil industry in particular, and in the Iraqi business environment, in general.

The research identified nine TQM key factors that can support TQM implementation and seven TQM barriers that hinder TQM implementation. Additionally, five TQM benefits, which can be gained as a result of successful implementation were also identified. Furthermore, the research reveals two key relationships. Firstly, the relationship between the barriers that hinder TQM implementation and the key factors required for successful TQM implementation. Secondly, the relationship between the key factors of TQM implementation and the potential benefits of successful TQM implementation. Finally, emerging from the study, a conceptual framework has been developed to facilitate the TQM implementation in the Iraqi upstream oil sector.

It is hoped that the outcome of this research will lead to a better understanding of the need for TQM practices in Iraq and will encourage other researchers to extend this study through further work.

CHAPTER ONE
INTRODUCTION

Chapter 1: Introduction

1.1. Research Background

Due to the ever increasing global competitiveness faced by business organisations in the 21st century, it has become urgent to consider the current business environment and its variables, which may differ significantly than those which were formerly investigated (Jamshidi et al., 2012). These varied circumstances include the global market and the use of information technology. Competing in such changed market conditions has compelled organisations to adopt appropriate technological approaches, a skilled workforce and managers who possess the skills to coordinate all aspects of these modern trading conditions, which places unprecedented emphasis on quality and customer satisfaction (Pun & Hui, 2002; Yeung et al., 2003). This has led to the development of a number of approaches to quality management, the most prominent of which has been Total Quality Management (TQM), which has been described by Kumar et al. (2009) as an all-embracing philosophy of management which aims at coordinating all functions of an organisations so that they are aligned to meet customer expectations and the organisation's objectives. Although there was a movement towards other approaches in the 1990s, such as the culture of excellence in the closing decades of the last century, the quest for quality has outlived such movements and remains relevant in such recent developments as Six Sigma (Dale, 2013). In fact, many of the 'excellent' US organisations on which Peters et al. (1982) based their studies actually failed towards the end of the 1980s suggesting that despite emphasising aspects of quality with quick fix solutions, they lacked the more enduring change brought about by TQM.

According to Odoh (2015), TQM is considered to be both a philosophy and methodology for managing companies, it provides the overall concept that fosters continuous improvement in a company. Thus, it is more than a philosophy as it entails a methodological approach, which draws on the strengths of statistical analysis as well as recognising the crucial role of employees at all levels in order to meet or exceed customer expectations (Besterfield et al., 2011). The type of industries and companies that adopt TQM significantly to meet their business objectives successfully vary from small to large, public to private and from manufacturing to service (Ahmed & Lodhi, 2015).

It is widely acknowledged that the oil industry is among the world's biggest and most important industries as it plays a critical role in driving the global economy. The exports of this industry represent more than 15% of the value of global exports (Mitchell et al., 2012).

Also, it has a significant role in the energy market of the future. According to world energy organisations, 65% of the world's energy needs have been supplied by the oil and gas industries (Asghari & Rakhshanikia, 2013). Longwell (2002) stated that the oil and gas industries are vital to sustaining economic development in the industrialised world and it is a cornerstone of progress in nations working their way to achieving prosperity.

Alsaidi (2014) pointed out that the practice of TQM in the oil and gas industries tends to increase the organisational performance, product quality and customer satisfaction as well as minimising the operating cost of those industries across the globe. These scales are quite important to fulfil performance improvement at an organisational level; hence, TQM is quite sensitive to overall performance improvement at an organisational level. Moreover, Montes et al. (2003) have indicated that when TQM is implemented properly by the company, its performance in general and productivity and profitability, in particular, will improve accordingly.

While the initial implementation of TQM started in Japan followed by the United States, European countries, and South East Asian countries, in the developing countries in general and in the Middle East, in particular, there has been a time lag in adopting TQM practices (Sadeghian, 2010). Therefore, although there is much evidence in the literature review that TQM is being implemented in developed countries, it is evident that there is a limited number of researches being conducted into TQM implementation in developing countries. Gosen et al. (2005) illustrated that unclear perception of quality management in developing countries is one of the TQM implementation gaps. In the same context, Sila and Ebrahimpour (2002) stated that many studies carried out in different developing countries of South America, Africa, and the Middle East show that there is a great shortage of information regarding the nature and stage of TQM implementation in these countries.

In the Middle East, especially in the developing countries, the survival of the oil industry is very much a crucial issue for a better economic landscape in the coming years (Alsaidi, 2014). According to Zhang (2000), the strengths and developments in many industries rely on the extent of adopting and applying of quality initiatives such as TQM. Iraq is a developing country where the oil industry is the main source of its income, as it is well known that the Iraqi economy relies on the export of oil and is dependent on the world's economy. In other words, the Iraqi economy is still underdeveloped in many aspects such as improved quality, product quality and operation methods compared with other developing and developed countries. Thus, it is important for the oil companies in this country to emphasise the

significance of implementing TQM programmes, and its tools, practices and techniques. Thus, there is also a lack of studies in terms of adopting and applying TQM in the Iraqi oil industry. However, it should be noted that attempts to apply quality systems such as ISO9001 or QHSE have been undertaken recently in the Iraqi oil industry. Thus, through this study, the researcher seeks to add to the knowledge of a new perspective related to the Iraq oil industry in addition to contributing to the wider TQM literature.

1.2. The justification of the research

This research concentrates on applying TQM in the Iraqi oil industry. The main justification for selecting this area is the critical role that the oil industry plays in Iraq. The oil industry is considered to be the main source of income and the backbone of the Iraqi economy. Oil contributes over 70% of GDP, 99% of exports and to over 95% of state revenue. Additionally, it has a significant role in terms of providing many jobs for a large portion of the community (IAU, 2011). According to EAI (2015), the Iraqi ministry of oil has set a number of goals which it endeavours to achieve. Among these goals is increasing the return and the revenue through increasing efficiency and quality as a way of increasing oil production to be 9.0 million bbl/d by 2020. However, there are two main challenges which hinder the achievement of this target. The first is related to the infrastructure of the oil industry, especially in terms of the storage capacity and the export infrastructure, which are in need for developing and expansion to facilitate the massive production of oil and the requirements of exporting. The second, and the most important challenge, is associated with the current inefficient management processes or systems which create a major obstacle to achieving successful business (EAI, 2015). Therefore, it is essential for the Iraqi oil companies to adopt a new management approach that takes into consideration the improvement of integrated management performance of the company as well as the requirements of the employees, the markets, and the customers. According to Al-Khalifa and Aspinwall (2000), TQM has been implemented by many companies in the industrialised and producing countries as a way to increase production leading to an improvement in quality of the level of goods and services, hence increasing the revenue.

Thus, adopting an efficient management initiative such as TQM can assist in the continuous progress and development of the Iraqi oil industry, enhance and improve its overall performance, and sustain its valuable resources. In addition, it can increase employee and customer satisfaction so that it can compete on the global market with high-quality standards. Furthermore, in its efforts to develop its oil infrastructure and to increase its oil production,

the government of Iraq, represented by its Ministry of Oil, has recently opened the doors to international contracts with international oil companies through four licensing rounds (Devine et al., 2014). Therefore, implementing appropriate management approaches such as TQM need to be taken into consideration for enhancing the connectivity with the relevant companies in the field.

Despite a global adoption of the TQM concept in different kinds of companies, Iraqi companies in general, and its oil industry in particular, are still only at the very initial stages of the TQM journey (IMOO, 2013). In fact, there is even a paucity of understanding of the TQM programmes, tools, and techniques as well as the lack of empirical research into TQM implementation in the oil industry. Also, the literature review reveals a significant deficit of studies that deal with aspects related to the implementation of TQM in the Iraqi oil industry. Moreover, there is appears to be no study that has investigated the issues and challenges facing the implementation of TQM in Iraqi oil companies and this makes this study unique in its kind. Thus, the importance of this current study is due to the aforementioned reasons as well as to the critical impact of the oil industry in all aspects of the Iraqi economy. This research intends to develop a framework to facilitate TQM implementation in the Iraqi upstream oil sector. This framework will be appropriate to the current conditions and resources of the Iraqi upstream oil companies.

1.3. Problem statement

The role and the importance of TQM in building and managing the quality of a product or a service can never be understated. This is because of the context of this particular philosophy, as it involves every stakeholder of the organisation and tries to establish the quality and productive mind-set. Additionally, this particular technique also focuses on the operational excellence of the firms, irrespective of the sector in which those are carrying out their business activities (Wiengarten et al., 2013). Operational excellence has a particular aim of improving the performance of the organisation by emphasising both the internal and external stakeholders (Jones & Seraphim, 2008). Nevertheless, even though many organisations have adopted various versions of the TQM framework, only a relatively small proportion of them have been able to do so successfully by achieving continuous improvement and greater efficiency (Taylor & Wright, 2003).

A number of oil and gas companies across the globe are utilising the approach of TQM, such as Japanese and Western companies, which have built their competitiveness based on its principles and as a result, have achieved enhanced operational performance. This boost in the performance is not only beneficial to the business goals of the company, rather it also impacts on the performance of other stakeholders of the company and also the economy of the community as a whole (Elhuni & Ahmed, 2014). Therefore, a very useful opportunity is presented in this research to examine worldwide literature relevant to this subject to create a synthesis of key points of success that work as the good practice and which could be accumulated as part of this research. Furthermore, some of the frameworks that operate globally can be reviewed in order to develop a conceptual framework or a model that works in practice and addresses the barriers to TQM implementation. The existing literature of TQM clearly shows that a number of studies have been conducted into the implementation of TQM in various overseas companies. This also includes various developing countries of the Middle East such as Libya, Jordan, Kuwait, Qatar, UAE, Saudi Arabia, Iran and Pakistan. These studies can most definitely help significantly by providing the basic understandings and development of the framework for the ultimate implementation of TQM in this region. Nevertheless, the thorough analysis of the literature indicates that there is no solid evidence of the development of a framework of TQM implementation, particularly for oil and gas companies of Iraq.

Although, various researchers including Ahmad and Elhuni (2014), Al-Shammari, (2013) and Bayazit (2003) tried to explore some basic requirements and considerations for the

implementation of TQM in the oil companies of adjoining countries to Iraq, there is not a complete framework development to guide the management of these companies in the implementation of TQM. It is important to consider that the studies conducted in the other regions, even in the Middle Eastern, countries will not be sufficient to support the appropriate implementation of TQM in the Iraqi context as frameworks and models are designed according to the specific cultural, economic and social characteristics of each region (Jones & Seraphim, 2008). This research study is expected to play an important role for the oil companies of Iraq to properly guide the companies about this particular tool of TQM and to support its implementation in this region.

The reason why this research study is focusing on the development of a TQM framework is that Iraqi oil industry is currently facing a number of challenges particularly in terms of increased competition and decreased quality level as well as inefficient performance of these companies if seen in the perspective of global competition. The inefficient performance is more likely connected with several issues such as the high amount of wastage of expensive resources, inappropriate management style, poor commitment towards protecting the environment and the disregard of managers of departments at lower levels in addition to weaknesses of training and development programmes as well as an inappropriate management culture which is still less consolidated and is often constrained by a host of structural factors (Aleqaby, 2013; Salih, 2013). All such problems and others challenges, when combined, become a major hindrance towards the effectiveness of the operations of the oil sector. Hence, in order to maintain their competitiveness and improve their performance, these companies need to embrace the TQM philosophy, which can improve their competitiveness through empowering employees and enhancing their performance.

Alawi and Muhsen (2015) pointed out that although some Iraqi oil companies had already started applying the aspects of TQM in their processes and activities, the success of practical implementation rate was much lower than expected. The reasons were mainly due to the methodology and the bureaucratic rules followed by those companies and the expectations they made from the tools of TQM. According to Al-Bourini et al. (2013), TQM is a culture that is supported by the commitment of top management involving the feedback and involvement of each and every function of the organisation. Likewise, Odoh (2015), stressed that TQM required the cooperation of managers in every function of a company in controlling and continually improving how work is done. Greater efficiency can only be achieved by aligning the efforts of all stakeholders (Dimitriades, 2000). The tools of TQM including

Pareto charts, pie charts, control charts and PDCA cycle serve only as a support to the building of this TQM culture; used in isolation, these tools do not assure the implementation of TQM within any organisation working in the oil sector (Abusa & Gibson, 2013). Elhuni and Ahmed (2014) have pointed out that organisations could be thwarted in their efforts for improved quality by outmoded bureaucratic rules and poor planning on the part of management. Thus, such companies were unable to meet the challenges presented by competitive market demands for better quality products and services. Therefore, companies, particularly in developing economies, need to transform their traditionally bureaucratic style of management to a high value-added, proactive, and efficient one. For such a transformation, the adoption of effective TQM strategies and practices is considered as one of the significant factors for success.

One of the major motivations for carrying out this research is the great shortage of empirical research into the implementation of TQM in the oil industry in Iraq. Globally, the oil sector has become much tougher and for a company to win the battle for its survival, it is very crucial to focus on its operational efficiency (Keogh & Bower, 1997). It is also necessary for a brighter economic landscape for Iraq in the coming years. Despite the fact that Iraq has one of the fastest developing economies in the world, with an average annual growth in GDP of 6.3% during the last ten years (Trading Economy, 2015), it is still considered to be a developing country in terms of its economy that depends on the oil industry as the main source of income. Therefore, effective implementation of strategies and models or frameworks of quality initiatives, particularly TQM, will have a positive effect on the performance of the oil sector in the country. Although this particular research is considered to be the significant initiative to implement TQM in Iraqi upstream oil companies, it can also be applied in other countries which have a similar economic environment such as some countries in the Middle East.

1.4. Research Aim and Objectives

1.4.1. Research Aim

The overarching aim of this research is to develop a framework to facilitate Total Quality Management implementation in the Iraqi upstream oil sector.

To achieve this aim the following specific objectives have been formulated.

1.4.2. Objectives

1. Determine the main aspects relating to Total Quality Management.
2. Establish the level and the extent of TQM awareness within Iraqi upstream oil sector.
3. Identify and evaluate the key factors required to facilitate TQM implementation in Iraqi upstream oil sector.
4. Establish the barriers of implementing TQM in Iraqi upstream oil sector.
5. Determine the benefits of applying TQM within the Iraqi upstream oil sector.
6. Develop and validate a conceptual framework to facilitate TQM implementation in the Iraqi upstream oil sector.

1.5. Scope of the Study

The scope of the study is focused on implementing TQM in the Iraqi upstream oil sector. The study is carried out in one of the major oil companies in the Iraqi upstream oil sector, which is the Iraqi Drilling Company (IDC). With its three branches in mid, north and south Iraq, IDC represents the only main body that is responsible for drilling, developing and the reclamation of the oil fields that cover the whole country of Iraq. Moreover, it is the only company that has implemented Quality Management System (QMS) in the Iraqi oil industry. Thus, IDC is leading ledge and therefore in an appropriate position to adopt and implement TQM. Accordingly, this research focuses on the IDC as the case study in order to develop a framework that facilitates TQM implementation in Iraqi upstream oil sector.

1.6. The Research Processes

To achieve the research aim and objectives, the research process comprises five main stages that can be briefly depicted as follows:

1. Stage One: This stage includes the literature review that will help in developing the research aim and objectives. The first draft of the conceptual framework will be produced in this stage in addition to establishing the research methodology.
2. Stage Two: This stage includes conducting a field study via the semi-structured interview and questionnaire survey.
3. Stage Three: This stage consists of updating the conceptual framework based on analysing qualitative data.
4. Stage Four: This stage comprises the revised version of the conceptual framework through quantitative data analysis and discussion.
5. Stage Five: This stage includes conducting a validation process in order to produce the final conceptual framework that is intended to address the research aim and establish conclusions and recommendations for its successful implementation.

1.7. Structure of the thesis

This thesis is divided into eight chapters. A brief description of each chapter is presented below to summarise the contents of the whole thesis.

Chapter One: The first chapter provides an introduction to the subject of the thesis, research justification, the problem statement, the overall aim and objectives, research contributions, limitations and the scope and of the research and research methodological stage.

Chapter Two: This chapter will provide an overview of the literature on the fundamental and different issues of TQM and the evolution of TQM with time and the TQM gurus and their contributions. Additionally, it will describe the key factors required for TQM implementation. As well as this, the main barriers and benefits of TQM implementation TQM will be considered. Finally, it will highlighted the major models and the initial conceptual framework of this research.

Chapter Three This chapter will focus on presenting a clear picture regarding the main aspects of Iraqi oil industry especially in terms of its role and impact on the Iraqi economy. In addition to considering the contributions of the international oil companies operating in Iraq, it will highlight the important issues related to the role of TQM in oil industry.

Chapter Four: This chapter will describe in detail the research methodology that has been applied and undertaken in this research. It provides full details the major steps followed and the methods employed by the researcher together with an explanation of the reasons for selecting these methods to achieve the aim and the objectives.

Chapter Five: This chapter will focus on a detailed analysis of the collected data from the face-to-face semi-structured interviews. The purpose of this chapter is to explore the state of TQM through the perception of particular interviewees.

Chapter Six: Presents second empirical chapter based on descriptive and inferential data analysis of the results that were extracted from the questionnaire survey. The main purpose of this chapter is to strengthen the research findings and identify the relationship between each two main categories in relation to their statements.

Chapter seven: This chapter provides an extensive understanding and discussion of the qualitative and quantitative findings summarised in chapters five and six with reference to the literature review. This stage provides the basis for developing and proposing the conceptual framework for this study. Furthermore, it presents the findings from framework's validation together with the modified conceptual framework.

Chapter Eight: Draws out the key research conclusions and discusses how the aim and objectives of the research have been achieved in addition to the recommendations and suggestions for future work.

CHAPTER TWO

TOTAL QUALITY MANAGEMENT

Chapter 2: Total Quality Management

2.1. Introduction

This chapter aims at presenting a critical review of the literature relevant to an understanding and discussion of various concepts related to Total Quality Management (TQM), which includes the contributions of the major quality Gurus. Also, the key factors of TQM and the barriers that might hinder the success of TQM, in addition to the main benefits of TQM implementation are discussed in detail. Moreover, the most prominent models of TQM are highlighted in this chapter and, finally, the initial conceptual framework of this study is proposed.

2.2. The concept of Quality

Quality has emerged and has remained as a dominant theme in management thinking since the mid-twentieth century (Beckford, 2010). Thus, before discussing the concept of TQM, it is important to understand and analyse the concept of quality. Djerdour and Patel (2000) pointed out that quality is no longer optional; it is an essential strategy for survival. The fundamental importance of quality as an essential element of TQM implementation strategies has been strongly emphasised by Billich and Neto (2000) who drew attention to the need for its presence even in the routine operations of the organisation ranging from policy formulation and decision-making through to the appropriation of resources, staffing and product or service delivery to meet the expectations of customers. Indeed, Juran (1991) singled out customer satisfaction as the single most important aspect of delivering a quality service to the customer. Nevertheless, a wide variety of definitions of quality is to be found in the literature, each with its own particular orientation and conceptualisation of the notion of excellence (LaKhal et al., 2006).

However, quality has been defined by some of the quality pioneers and experts. Among the well-known definitions of quality are the following:

- Quality is fitness for use Juran (1989),
- Quality can be judged by the customer Deming (1986)
- Quality is equivalent to consumer satisfaction Ishikawa (1985)
- Quality is meeting customer requirements Oakland (2003).

Evans and Dean (2003) proposed that the roots of quality definitions can be divided into four primary categories, which included value, excellence, conformance to standards, and meeting customers' expectations. Of these four roots, conformance to standards is the most amenable to measurement of quality and that value excellence were more difficult to measure due to their lack of precision. Consequently, Parasuraman et al. (1993) have claimed that the concept of meeting or exceeding customer' expectations is the core principle underlying all definitions of quality and was the most likely to be taken up in future research.

Although satisfying or focusing on the customers' needs and expectations is the major element in all these definitions, it seems that every quality expert defines quality in a somewhat different way. Harvey and Newton (2004), pointed out that it is difficult to define quality because the concept is both a personal and a social construct. They argued that quality is a perception. It is not an absolute, but is relative to each person's views and experience and is not an isolated activity, but part of the whole project environment. The criteria for selecting attributes are based on personal values and judgments (Watty, 2003). This may explain why some say the quality is in the eye of the customer. In today's businesses, ignoring quality could increase cost and time, lose customers and lead to project failure.

2.3. The Evolution of TQM

TQM is rooted in the Statistical Process Control (SPC) based on the work of Walter Shewhart at the Bell Laboratories in the United States during the 1920s. Shewhart's approach was based on identifying certain variables in the production process which were amenable to measurement. This resulted in his scientific method based on the plan-do-check-act cycle of quality improvement in the production process (Evans & Lindsay, 2001). TQM evolved as different researchers identified various stages in production based on their own particular perspectives. For example, Chin et al. (2002) pointed out that the development of TQM consisted of five stages: room for development; promising; potential winners; vulnerable; and world class. Likewise, Lau et al. (2004) stated that the development of TQM also included five stages: level of unaware, uncommitted, initiator; improver and achiever. However, the majority of researchers and authors have clarified that the TQM has developed through four stages. According to Dale et al. (2013), the evolution stages of TQM can be categorized by four main stages, shown in Figure 2.1, namely Quality Inspection (QI), Quality Control (QC), Quality Assurance (QA), and Total Quality Management (TQM).

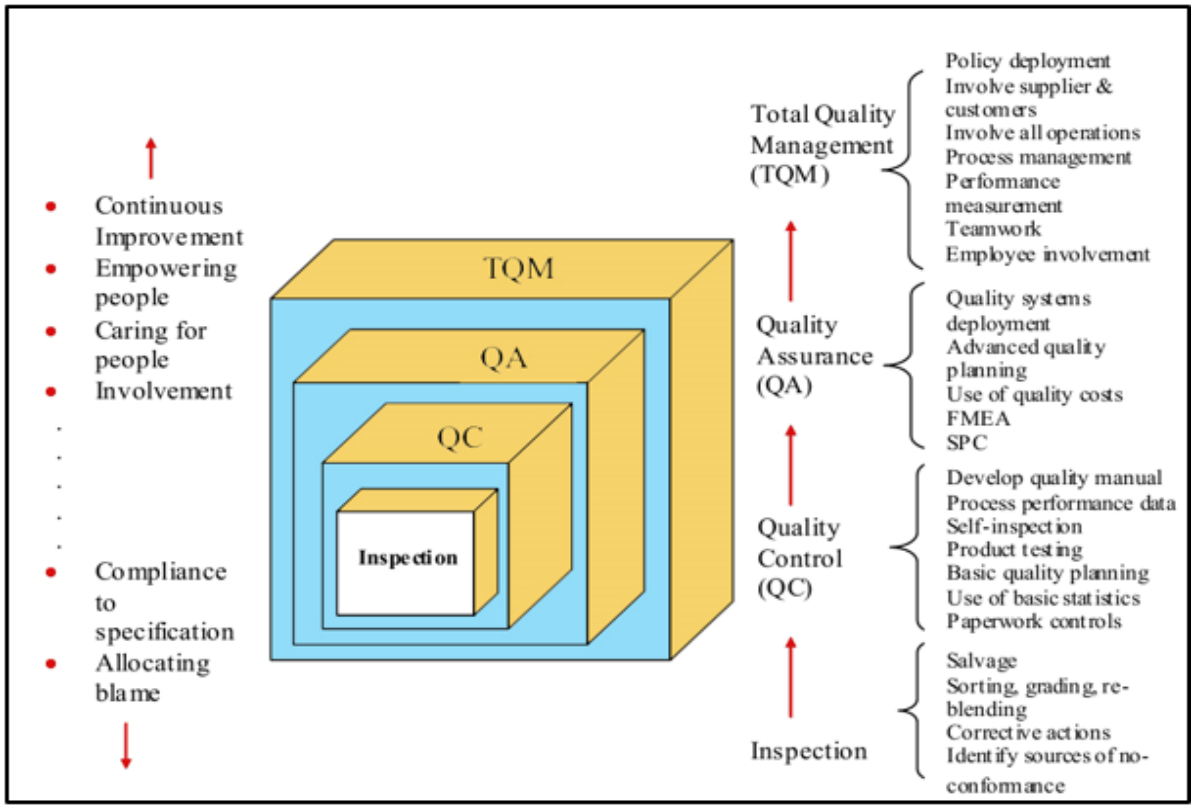


Figure 2.1 The four levels in the evolution of TQM, (Source: Dale et al., 2013)

In the same context other researchers such as Juran (1991); Dahlgaard et al. (2007) and Harris et al. (2013) also pointed to four main phases in the development of TQM and these were broadly similar to those identified by Dale et al. (2013). In the following sections, these four stages are discussed with reference to the relevant literature.

2.3.1. Inspection

During the Second World War, the phase of inspection and quality control developed as the manufacturing process had become more complicated. Additionally, with a large workforce assigned to many supervisors, there was the risk of a loss of control of the work. Consequently, it was necessary to appoint inspectors on a full-time basis to ensure that quality was maintained. Thus, at this stage, quality was equated with inspection, which usually took place during the process of production (Dahlgaard et al., 2007). Similarly, Harris et al. (2013) identified checking and inspection as the key element of quality at this stage in the development which led to TQM. Costin (1994) also saw inspection as the key aspect of quality during this phase. Inspection was being considered as an evaluation moment in the production process for quality assurance. Components or materials which failed to conform to certain quality specifications were rejected or returned to be reworked. However, this method

of appraising the quality of the product did not directly include either operators, suppliers or customers.

2.3.2. Quality Control

The second phase in the development of TQM was characterised by even more attention to quality control through compliance with specifications, standardisation and measurement. Quality control relied heavily on statistics and the rejection of products at the end of the process, which did not comply with specifications. This involved the use of control charts and random sampling methods developed by Shewhart and Dodge-Roming between the years 1924 and 1931. Stewhart identified two distinct types of variations in the production process. The first of these was variation which was randomly caused, a type of natural variation. The second type of variation was due to certain causes in the production process which could be addressed by quality control intervention. Such interventions could improve the predictability of the manufacturing process (Dahlgaard et al., 2007).

Quality Control has been defined by the ISO (2009) as operational activities and techniques that are utilised to meet the quality requirements. This definition suggests that any activity, whether improving quality or serving the control management, is considered as quality control activity including operation process product design and outputs. Additionally, quality control was related to achieving quality requirements by using statistical techniques. It is associated with the inspection process of the finished products and services, but it is more concentrated on preventing and avoiding any shortcomings and observing operation processes to check whether they were functioning in such a way as to meet the required standards (Ismail, 2012). Ellis et al. (2005) have commented on how effective quality control methods were leading to lower errors and defects and better process control. They added that quality control is not a process for establishing standards, but for sustaining and maintaining them through a means of selection, defect prevention and measurement.

2.3.3. Quality Assurance

The third stage in the development of TQM witnessed a shift from identifying defects at the end of the process towards a continuous improvement approach, which focused on tackling the root cause of the defect at source. This stage of the development emphasised organisational planning aimed at the eradication of defects and their occurrence. This is the goal of quality assurance (Dale et al., 2013). Dahlgaard et al. (2007) have shown how quality assurance has been built on the foundation of the previous two stages with a strong focus on

meeting the needs of customers. Key phrases from the quality assurance stage included “right first time” and “fit for purpose” which stressed consistency in the delivery of quality. Standards of quality assurance are set internationally by the International Quality Standard ISO 9000 and its related sets of standards (Harris et al., 2013).

According to Besterfield et al. (2012), quality assurance is a set of actions done before the planning process or manufacturing of products to assure better quality to the customers. Moreover, it emphasises defect and errors prevention through improving production and related processes to reduce or avoid any contingencies that might cause errors or defects in the first place, whereas quality control is a group of activities done during producing goods or delivering services to clients but examining and blocking the release of defective production; thus, it only focuses on defect detection.

2.3.4. Total Quality Management

TQM is a term that was initially coined by the Department of Defence in the United States (Evans & Lindsay, 2001). It is the fourth stage in the development of quality and was adopted in the 1980s as a means of improving quality in order that US organisations could compete effectively with their Japanese counterparts (Talha, 2004). Japan had become a major competitor in the 1980s due to its highly developed technology, its lower labour costs in comparison to those in the US and, in particular, to its work ethic. Japan gained a major foothold in the American market because US companies were constrained by labour laws and government regulations (Mele & Colurcio, 2006). The TQM philosophy was seen as a response to Japanese competitiveness and was widely adopted because of its more refined techniques and its greater attention to all company stakeholders, which included internal and external customers. TQM was not confined to processes of production or delivery of service ,but also was applied to partnerships with suppliers and high quality service to customers (Dale et al., 2013). By the 1990s, TQM offered organisations and service providers a new managerial approach to respond to the challenges presented by the often relentless market competition which prevailed (Mangelsdorf, 1999). According to Lau and Tang (2009), many contemporary organisations adopted TQM due to its readiness to use innovative technology as a means of meeting the expectations of their customers. This involved a fundamental change from traditional management styles and a more in-depth appreciation of the role of the culture of the organisation in bringing about change. Thus, TQM came to be seen as indispensable for the long-term survival and sustainability of businesses as it involved the commitment of

everyone at every level of the enterprise. For TQM to be effective, Harris et al. (2013) have proposed that the provision of goods and services by organisations should meet three criteria.

1. Be fit for purpose on a consistently reliable basis.
2. Delight the customer with the service that accompanies the supply of a good.
3. Supply a quality of product or service that surpasses that of competitors irrespective of price.

Therefore, TQM has the potential to transform industries that require restructuring in order to be able to effectively compete in market environments which have become highly competitive. In particular, the implementation of TQM in the Iraqi oil industry could result in the provision of an overall high-quality standard that contributes effectively to improving the entire performance.

2.4.The contribution of Quality Gurus

To understand the origins of TQM, it is significant to understand the contributions made by the quality gurus whose philosophies, methods and tools have survived and have become the practice (Beckford, 2010). Although many quality gurus did not actually use the term TQM, their propositions have made a significant impact on the world through their contributions, which are considered the basis of understanding the development of TQM movement and practices. The following subsections present the main philosophies, practices, principles of TQM suggested by the most famous quality pioneers.

2.4.1. William Edwards Deming

Most authors believe that the founder of the modern impetus towards quality in business is William Edwards Deming (Beckford, 2010). In essence, Deming viewed TQM as an approach in management which promoted continuous quality improvements of products and services by motivating all employees to participate in the process of change and to find fulfilment in being intimately involved in meeting customers' expectations in order to ensure the longer term viability of the company organisation (Anderson et al*,.* 1994 in Lawrence, 2000).

Although Deming is associated with cyclical problem solving method of Plan, Do, Check and Act (PDCA), some authors trace the provenance of this method to Walter Shewhart. In any case, the PDCA cycle of quality improvement requires top managers to become intimately involved in the internal activities of the organisation (Boaden, 1997).

Deming placed the responsibility for quality improvement on managers whom he viewed as being tasked with inculcating a culture where errors and defects were unacceptable. The goal was to delight the customer. Accordingly, employees were encouraged to report any problems without any fear of being blamed. Quality control would be monitored by using statistical techniques (Beckford, 2010).

Deming believed that quality was the key to gaining a competitive position in the market and, in order to achieve this, each and every employee had a role to play. Thus, at every stage of production or service provision, whether at design, planning or delivery of product or service, quality should be the principal organisation (Boaden, 1997). Deming's theory of quality is summarised in his 14 principles of TQM, which are listed below (Beckford, 2010 P: 75):

1. Create consistency of purpose in bringing about improvement of product and service.
2. Adopt the new philosophy which is required to meet the challenges of a new economic age. Management is taken with providing leadership in bring about the required changes.
3. Discontinue reliance on mass inspection and, instead, build quality into the product or service.
4. Cease the practice of awarding business on price and concentrate on single suppliers.
5. Develop a system of continuous improvement to provide enhanced quality while minimising costs.
6. Initiate on the job training.
7. Leadership is to be directed towards helping people to improve performance.
8. Eliminate an atmosphere of fear and inculcate, instead, a culture of collaborative work to benefit the organisation.
9. Break down barriers and rivalries between departments by encouraging research, design sales and production departments to see themselves engaged in a common enterprise.
10. Eliminate slogans, exhortations and numerical targets, which only serve to divide the workforce.
11. Instead of quotas or numerical goals for employees, managers should provide leadership by example.
12. Remove barriers that prevent people from taking pride in their work.
13. Initiate a vigorous education and self-improvement programme.
14. Task everyone in the organisation with bringing about the requisite changes.

2.4.2. Joseph Juran

Juran developed a philosophy of quality while working with Western Electric in the 1920s and later, in the 1940s while working with Deming where he, nevertheless, developed his own approach which resembles Deming's in certain aspects but differs in others (Zairi, 2013). Like Deming, Juran saw that the poor quality of products in the US generally, resulted in the loss of customers to foreign competitors, which presented a crisis for many UK companies. Again, Juran was in agreement with Deming that improving quality would involve new thinking and changes at all levels within the management hierarchy (Evans & Lindsay, 2001). However, Juran focused on management as playing a pivotal role in adapting to change and in giving a lead throughout the organisation. Juran defined quality in terms of fitness for purpose or use (Aloe & Gorantiwar, 2013). Juran's contribution to quality management was presented in the form of a trilogy published in 1986 in which he proposed three processes necessary to bring about quality improvement:

1. Quality control: with the emphasis on prevention of deficiencies in the product or service and rectifying such deficiencies to provide a product or service free from any defects.
2. Quality improvement: a proactive approach so that improvements are made prior to problems appearing.
3. Quality planning: where the planning is driven by the imperative of meeting the needs and expectations of customers. (Juran, 1988).

In his trilogy, Juran proposed 10 steps to achieving quality improvement (Beckford, 2010):

1. Build up an awareness for the need to improve. .
2. Set targets for improvement.
3. Coordinate people so that these targets can be achieved.
4. Deliver training at all levels in the organisation.
5. Carry out projects to solve problems.
6. Report progress
7. Give recognition.
8. Communicate results.
9. Keep score and assess overall progress.
10. Make annual reviews a regular feature of policies and procedures in order to sustain the momentum of quality improvement.

2.4.3. Armand V. Feigenbaum

Feigenbaum was the first recognised quality guru to use the term" total quality control" (Dale et al, 2013). He believed that the task of management was to control and coordinate all operational functions of the organisation including its social and technological dimensions, Managers needed to attend to all these aspects of the organisation, while at the same time, focusing on customer satisfaction and relationships with suppliers (Beckford, 2010). Feigenbaum insisted that quality entailed more than merely inspecting products at the end of the production line, but implied that high standards should pervade the entire organisation embracing high quality materials and mechanisation, highly skilled operatives, providing the best customer service at a competitive price. He identified four key stages of quality control, (Aole & Gorantiwar, 2013):

1. Setting definitive benchmarks for quality.
2. Monitoring the extent to which these benchmarks are being achieved.
3. Taking corrective action when necessary in order to achieve the set standards.
4. Continually devising methods for improving these standards.

Thus, Feigenbaum's approach to quality implied involvement of employees at all levels, teamwork, and engagement with strategies for continuous enhancement of performance and service delivery. However, delivering high quality did have cost implications, but Feigenbaum insisted that quality and cost should be seen as friends, rather than as foes (Zairi, 2013).

Bank (2000) mentioned that Feigenbaum identified 10 critical benchmarks necessary for total quality competitive success:

1. Quality is a company-wide process.
2. Quality is what the customer says it is.
3. Quality and cost are a sum, not a difference.
4. Quality requires both individual and team work.
5. Quality is a way of managing.
6. Quality and innovation are mutually dependent.
7. Quality is an ethic.
8. Quality requires continuous improvement.
9. Quality, in the final analysis, is a cost effective route to excellence of product and service and is therefore the least capital intensive direction.

10. Quality is pervasive throughout the organisation and embraces both suppliers and customers.

2.4.4. Philp Crosby

Crosby viewed quality as compliance with certain specifications, which were amenable to measurement. Even though this implied higher standards, Crosby, nevertheless, believed that this would lead to reducing costs as providing higher quality would result in greater profitability (Dean & Bowen, 1994). Insistence on meeting high standards which were measurable aimed at eliminating defects completely in what he called a zero defect programme. He proposed five essential conditions for achieving zero defects standard of quality.

1. Quality does not mean excellence or elegance but meeting certain specifications which could be measured.
2. Quality problems are non-existent
3. Getting it right first time is always less costly in the long run.
4. Performance should only be assessed in terms of the cost of delivering quality.
5. There is only one standard of performance, which is zero defects. (Beckford, 2013)

Thus, Crosby moved beyond the statistical and problem-solving approaches adopted by his predecessors Deming and Juran. Crosby went so far as to claim that quality is free as the comparatively small price to be paid for prevention would always more than compensate for the cost of detection, correction and, ultimately, failure. He proposed fourteen aspects of quality management: (Mandal, 2009).

1. Commitment of top Management to quality.
2. Team approach to quality improvement.
3. Measurements of quality to identify the areas for improvement.
4. System for measuring cost of quality.
5. Initiating corrective actions.
6. Promoting quality awareness in the company.
7. Planning ‘zero-defect’ programme.
8. Organising supervisory training for all levels of employees.
9. Setting standards for improvement by both individuals and groups in the organisation.
10. Devising performance methods for achieving zero defects outcomes.

11. Having a day of observance of zero defects to reinforce quality benchmarks.
12. Giving recognition to individuals who achieve their quality goals.
13. Setting up 'quality councils' where employees could share experiences and best practice.
14. 'Do it all over again' for improvement.

2.4.5. Kaoru Ishikawa

Kaoru Ishikawa is known as the "father of quality circles" in recognition of his seminal contribution in the 1960s to inculcating a philosophy of quality into Japanese industry (Bank, 2000). Aole and Gorantiwar (2013) have shown how Ishikawa extended the notion of quality to include excellence of after-sales service. He also emphasised the quality of management, of individuals and of the company itself. For Ishikawa, TQM could not be achieved without employee participation. He believed in the importance of quality circles, but also understood the essential role that education played in the achievement of quality. Thus, he incorporated universal education in his seven QC tools: (Ishikawa, 1985 cited in Aole and Gorantiwar, 2013).

1. Process flow chart.
2. Check sheet.
3. Histogram.
4. Pareto chart.
5. Cause - effect diagram (Ishikawa diagram)
6. Scatter diagram.
7. Control chart.

With these tools, Ishikawa posited that managers and staff could competently address any problems they encountered in achieving high standards of quality (Zairi, 2013). The fundamental principles of Ishikawa's approach to quality have been summarised by Evans and Lindsay (2001):

1. Education is fundamental to every stage of achieving quality
2. Knowing what the customer requires is the first step in achieving quality
3. The elimination of inspection is the ultimate goal of quality control
4. Focus on eliminating the root causes, rather than treating the symptoms
5. Everyone in the organisation has the responsibility of quality control

6. The overall objectives are what really matter, rather than the means to achieving those objectives
7. Sustainable profitability is the outcome of quality.
8. It is the market which is the ultimate determinant of quality
9. It is most inappropriate for managers to respond with anger when confronted by indisputable facts by subordinates
10. Ninety-five percent of all problems can be solved by the use of appropriate tools.
11. Data presented without variance measures are useless

2.4.6. Genichi Taguchi

Taguchi viewed quality in terms of the loss incurred by the company from the time the product is dispatched, for example, loss due to deficits in the quality of the product or service whereby it fails to meet the expectation of the customer (Taguchi, 1986 in Aole & Gorantiwar, 2013). Thus, Taguchi focused on the design of the products or services, rather than on inspection. For Taguchi, improving and designing a quality product involved eight stages: Defining the problem, stating the objective to be achieved, carrying out a brainstorming session, designing the experiment, conducting the experiment, analysing the results, interpreting these results, and carrying out a further confirmatory experiment (Beckford, 2010). Aole and Gorantiwar (2013) have summarised the salient principles of Taguchi's quality philosophy:

1. Focusing on reducing the variances in key performance indicators for the product is essential for achieving quality improvement.
2. The loss incurred by a customer due to a variation in the product's performance is approximately proportional to the square of the deviation of the performance characteristics from its target value.
3. The final quality and cost of manufactured products are largely determined by the engineering design and manufacturing process of the product.
4. Minimising variations in the performance of a product or process can be achieved by utilising the non-linear effects of the parameters of the product or process on performance characteristics.
5. Experiments based on statistical methods can be utilised in order to identify the product or process factors which can assist in minimising performance variances.

2.4.7. Common aspects of Quality Gurus

The review of the key aspects of these quality gurus' perspectives on TQM reveals that while each has their own particular approach, there are certain commonalities which are summarised as follows:

1. Management is responsible for providing a clear mission and vision of the company to everyone.
2. The importance of commitment to quality and the important role of communication in facilitating flow of information throughout the company appears as important.
3. Focusing on customer satisfaction is essential.
4. It is significant to control the process and enhance quality systems and product design.
5. The role of employee education and training emerges as an important factor for quality.
6. TQM emphasises prevention of product defects, rather than post factum inspection.
7. Quality is an all embracing endeavour in the organisation and applies to all departments including design, engineering, purchasing, the manufacturing process, marketing and delivery to customer.
8. There is a need to focus on continuous improvement of all the company's processes and activities.
9. Employee empowerment is essential to achieving quality outcomes and should be supported by human and technical processes.

In addition, the quality pioneers mainly agree that transferring from traditional culture to quality culture cannot occur overnight. This means that quality initiatives such as TQM are long range approaches to achieving expected results, rather than a rapid-fix as some managers think. Overall, the contributions of quality gurus is considered as the appropriate starting point for many researchers and scholars to develop new quality models and frameworks.

2.5. The awareness and definition of TQM

TQM is considered to be one of the most enduring management innovations in recent decades. Providing managers and practitioners with an extensive knowledge and understanding of TQM is a real challenge, but is highly important to many companies worldwide (Schmoker & Wilson, 1993). Awareness represents a major issue, which can encourage and lead the whole company's staff to feel that they are responsible for attaining quality in all aspects (Crosby, 1996). Moreover, the awareness of TQM results in continual

improvement processes within an entire company and achieving better process outcomes (Juran, 1986).

According to Zairi (2002), companies should increase awareness of quality at different levels and formulate simple strategies to implement appropriate programs to start with; also they should achieve certain levels of maturity by inaugurating an approach to quality. Additionally, lack of awareness and poor knowledge about TQM benefits lead to different understandings and opinions about what TQM should result in, for instance, whether it will be measure by improving the performance of human resources or increasing profit. In fact, raising TQM awareness will contribute effectively in achieving many benefits particularly towards the company's staff; for instance, the employees will be fully aware of management's quality policy and procedures. Practitioners of TQM can be faced with difficulties in terms of understanding and awareness of what TQM actually is. It has been claimed that companies may suffer from lack of understanding and awareness due to the existence of several TQM definitions and the ability to recognise the relevant applications of TQM in their activities (Andersson et al., 2006).

Each definition of TQM is based on the perspectives and background, interests as well as the degree of knowledge and awareness of authors, scholars or researchers as many books, researches and articles have been written about it. Therefore, based on the extensive literature review, TQM has been defined in many different ways.

TQM is regarded by a number of authors as a management process for gaining continuous improvement of each facet of the organisation. Other writers consider it as an integrated approach that can lead to the success and sustainability of effective results of the organisation. It is also regarded as a business organisational culture by many other authors. Moreover, with reference to the systematic nature of the organisation, TQM is defined by various authors as a systems approach, whilst several writers regard it as a strategy for the advancement of the activities that concerns the organisation. Furthermore, TQM is considered by many other w authors as a management philosophy that strives for the involvement of organisation’s stakeholders to attain its set goals.

In support of the above mentioned variations in perspectives found in TQM definitions, therefore, results in the following definitions:

- **TQM as a management process**

As indicated by Senthil et al. (2001) and Selladurai (2002), TQM is a constant process of management, the goal of which is to improve the quality of all the processes and activities of the organisations. In other words, it aims at developing an effective and constant management system and organisational culture for the purposes of improving the organisation's activities including customer satisfaction. Similarly, Parzinger and Nath (2000) stated that TQM was a management process that aimed to implant a continuous improvement culture in the whole organisation to make sure that the organisation constantly and reliably met and surpassed customer needs and expectations.

- **TQM as an integrated approach**

TQM has been defined by Oakland (2003) as an integrated approach applied to advance competitiveness and flexibility using planning, as well as understanding every activity in the organisation. Additionally, every stakeholder is involved in all the activities. Hashmi (2007) pointed out that TQM viewed an organisation as an integrated process that should be constantly improved by combining worker experiences and knowledge in order to attain organisational aims and that it must be accomplished by management and employees in all organisation's activities.

- **TQM as an organisational culture**

TQM is defined by Kanji and Wallace (2000) as an organisational culture dedicated to fulfilling customers' desires using a continuous development. Gherbal et al. (2012) stated that, within the TQM culture, an open and co-operative culture had to be established by the management in which all the employees, regardless of their managerial levels or positions, had to be made to feel that, together, all of them were responsible for achieving the organisation's objectives.

- **TQM as a strategy**

TQM is defined by Jones (1994) as a strategy for improving and enhancing the performance of the organisation using employees' commitment to completely satisfy customer's needs at the lowest general cost through constant development of products and services, business practices, and involvement of the stakeholders. According to Hietschold et al. (2014), TQM is an organisational strategy that requires long-range management orientation to lead companies to become efficient.

- **TQM as a management system**

According to Hellsten and Klefsjo (2000), TQM is defined as a constantly developing management system consisting of moral values, scientific practices and tools, with the aim of increasing and enhancing the satisfaction of internal and external customers with reduction of resources. Likewise, Kartha (2004) stated that TQM is defined as a management system approach that aims at improving customers' value by designing and constantly enhancing organisational processes and systems.

- **TQM as a management philosophy**

TQM has been defined by Bayazit (2003) as a management philosophy that aims to continuously improve the performance of processes, products and services so as to attain and exceed customer expectations. Likewise, Pun (2002) defined TQM as an integrated management philosophy and a collection of practices that highlighted continuous improvement, fulfilling the needs of customers, decreasing reworking, long-term thinking, improved employee participation and teamwork, process restructure, competitive benchmarking, team- based problem-resolving, continuous measurement of outcomes and effective relations with suppliers.

In reference to the above different definitions, it becomes evident that TQM has a wide perspective which may be interpreted differently in accordance to the perceptions of the author, academic or practitioner referring to the TQM concept. However, there are major common components between these definitions that include TQM producing different kinds of benefits for the organisation and stakeholders. Moreover, key factors or elements of TQM were specified by these definitions. Thus, based on the above mentioned definitions and their main perspectives, a common definition of TQM has been developed by the researcher as "a holistic management philosophy and a comprehensive approach that involves all the organisation's stakeholders for improving and enhancing the overall performance of the company, through formulating an effective strategic orientation and establishing constant processes of management which include everyone in the company. Moreover, in the light of this philosophy, a corporate culture of TQM will be established to meet the need, expectation and requirement of internal and external stakeholders".

2.6.The Key factors of TQM implementation

To exploit the benefits provided by TQM, companies must manage the complex implementation process successfully. Thus, companies need to identify and evaluate the key factors when introducing TQM (Hietschold et al., 2014). The identification of key factors of TQM assists the companies to better understand the dynamic and active nature of TQM. TQM is about complex processes that focus on company's culture, size, and management styles. Nevertheless, TQM has no general standard formula (Koh & Low, 2010). Therefore, an extensive review of the literature was carried out to explore the concept and the main principles of TQM from leading writers on quality such as Crosby (1979), Deming (1986), Feigenbaum (1991) and others who have developed various approaches in the area of quality management. Taking a holistic view of their insights into quality management permits the identification of key factors that have helped quality professionals and practitioners to build on their ideas in order to develop their TQM implementation models.

Crosby (1979) identified 14 steps for quality improvement (See Section 2.4.4) which included the commitment of top and intermediate management , measurement of quality indicators, evaluation of quality costs, taking corrective action, training, a philosophy of zero-defects, setting of clear objectives setting and a scheme for employee recognition.

Feigenbaum (1991) viewed leadership as a key factor for attaining quality through embedding quality in all the company's activities and through ensuring the participation of the entire workforce. By adopting this approach, Feigenbaum believed that the company would operate with greater efficiency and the minimisation of costs incurred by implementing quality processes. Motwani (2001) reported that the seminal empirical study conducted by Saraph et al. (1989) identified eight key factors of quality management: the role of management leadership and quality policy, the role of the quality department, training, product/service design, supplier quality management, process management, quality data and reporting and employee relations.

Flynn et al. (1994) built on the Saraph et al. (1989) study and produced a list of TQM key factors for use at the operational level rather than at the organisational level. This involved employees at all levels from management and operatives. These key factors were: top management support, quality information, process management, product design, workforce management, supplier and customer involvement.

Black and Porter (1996) conducted a survey aimed at identifying key TQM factors adapting the Baldrige Award Model to devise their questionnaire. The target sample for the survey was

selected from members of the European Foundation for Quality Management (EFQM). The questionnaire consisted of thirty-nine items and a total of 462 questionnaires were posted to 61 different companies. 204 completed questionnaires were returned representing a response rate of 44%. Ten key factors were identified in the analysis of the data as being of critical importance in the implementation of TQM. These were: people and customers, management-supplier partnerships, communication of improvement information, customer satisfaction orientation, external interface management, strategic quality management, teamwork structures for improvement, operational quality planning, quality improvement measurement systems and corporate quality culture.

Research conducted by Al-Omaim (2002), was designed to gauge the level of understanding of TQM within Saudi Arabia companies. Twenty-one key factors were found as being of critical significance for the implementation of TQM. These were categorised into three "tiers of criticality" each of which consisted of seven key factors, identified as critical: top managers' responsibility, top management vision and customer satisfaction, customer needs and feedback to processes, strategic orientation and policy deployment, workforce commitment and training, continuous improvement and fact-based processes.

Baidoun (2003), conducted an empirical study of 78 companies in Palestine with the aim of discovering the key quality factors considered to be of critical importance for effective TQM and to understand how these were being implemented in the different companies. The study revealed that nineteen quality factors were perceived as being significant for the successful implementation of TQM. These factors were identified and categorised into three tiers of criticality. Nine of these factors were considered as critical during the early stages of the implementation process. These were: top management commitment, quality management structure, visible involvement of top management in quality and customer satisfaction, formal documented quality management systems, continuous improvement processes, clear mission statement, comprehensive policy development, satisfying customer needs and expectations and workforce commitment to the quality goals of the company.

Lewis et al. (2006) surveyed the TQM literature and research into SMEs in a developing economic context and ranked the key emerging factors by their frequency of occurrence in the various studies. The authors ranked the emphasis placed on key factors and quality management principles that determine the success of TQM. This work is a synthesis of the literature on TQM implementation in SMEs operating in a developing environment and

identifies several critical factors. The factors that have been identified are prioritised based on their recurrence in several number of research and articles. The compliance requirements of the ISO 9001:2000 standard is mapped to one or a combination of quality management principles on which the standard is based. These principles are grouped as soft and hard and ranked in terms of the number of compliance requirements they represent. Evidence from this work shows that, while researchers have placed more emphasis on the "soft" factors, the compliance requirements of the ISO 9001:2000 standard stress more on the "hard" factors. The following twelve factors were identified and are presented in rank order: quality data and reporting, customer satisfaction, human resources utilisation, management of process quality, training and education, management commitment, continuous improvement, leadership, strategic quality planning, performance measurement, customer focus, and contact with suppliers and professional associates.

Koh and Low (2010) investigated the implementation levels and the types of TQM practices adopted in a sample of construction companies. The investigation was based on a questionnaire designed to elicit the implementation level of a number of identified TQM key factors. Eight key factors had been identified which were derived from both organisational-management and construction-related studies as being of critical importance for TQM implementation in the construction industry context to represent the TQM spirit. These were top management leadership, customer management, people management, supplier management, quality information management, process management, organisational learning, and continual improvement.

Kumar et al. (2011) conducted research into TQM in manufacturing and service industries in North India. In total, 60 questionnaires were sent to several companies. The results found that there were seven TQM success factors, but these factors had different rankings in manufacturing and service industries. These success factors were as follow: management commitment, customer satisfaction, continuous improvement, teamwork, employee training, feedback and effective communication.

Another study conducted by Gherbal et al. (2012) aimed at identifying key success factors that affected the implementation of TQM in Libyan Construction Industry. The research covered forty-five construction companies working in the private and public sectors. The findings were the results of the distribution of 200 questionnaires to general managers and quality managers working with these companies. The results revealed five key factors of

TQM namely communication to improve quality, organisation management, training and development, employee involvement and recognition, and culture.

Hietschold et al. (2014) carried out a systematic literature review in order to identify and measure the key factors when introducing TQM. Their review covered the analysis of 145 studies, which revealed the following eleven key factors: human resource management and teamwork, process management, top management commitment, supplier partnership, customer focus, strategic quality planning, training and learning, information and analysis, culture and communication, benchmarking and social and environmental responsibility.

Dedy et al. (2016) conducted a study to review the relationships between the key success factors of TQM and their impact on employee performance in the Malaysian automotive industry. The study proposed a conceptual structural model that linked six TQM key success factors and employee performance. These six success factors of TQM were as follow: top management, leadership, communication, customer focus, teamwork and training.

In their study, Neyestani and Juanzon (2016) implemented an extensive literature review mainly based on the construction industry in addition to other industries in order to identify the most prominent key factors of TQM. The findings revealed seven factors that were considered as the successful key factors of TQM extracted from the findings of 37 empirical studies. These were as follow: customer focus, leadership, process management, supplier quality management, employee involvement, information and analysis and training. Other researchers such as (Dean & Bowen, 1994; Dimitriades 2000; Nilsson et al., 2001; Allen & Kilmann, 2001; Sila & Ebrahimpour 2002; Youssef, 2006; Kumar et al., 2009; Talib et al., 2011, EFQM, 2010; Ismail 2012; Ahmad & Elhuni 2012; Aquilani et al., 2016; Mehralian et al., 2016) have contributed to the examination of the key factors of TQM implementation and their findings varied regarding the number of factors but there was a commonality of results.

Forming a general conclusion from the above-mentioned studies is that there is a range of factors which have to be considered by each company for the TQM implementation process to be successfully implemented. Moreover, the TQM concept is enforced by key factors which differ from each other as they are determined by the specific company. The following subsections will emphasise on the key factors that have been identified according to the frequency in which they appear by number of studies stressed by professionals, researchers and experts and supported by the writing of quality pioneers, empirical surveys and case studies (see Table 2.1). In addition, the most prominent TQM models worldwide like

MBNQA, EFQMA, Deming prize model and Oakland TQM models have been also utilised to enhance the identified TQM key factors. Accordingly, these key factors will set a base line from which a TQM in Iraq can be implemented.

2.6.1. Top Management commitment

Top management or leadership has a significant role to play in TQM where it is amongst the main key values and ideas of the European Foundation for Quality Management (EFQM) and Malcolm Baldrige National Quality Model (MBNQA). Actually, factors of leadership or top management commitment have been put at the apex of the list by most quality models for the purposes of effective quality management implementation. The majority of TQM literature has highlighted the important role of top management. Top management is seen as one of the critical factors for the success of TQM (Zairi, 1999). Goetsch and Davis (2000) stated that top management is the capability to motivate and inspire individuals to make a willing and voluntary obligation for the purposes of fulfilling or surpassing the organisational goals. The viewpoint that constantly develops work approach and processes to advance quality, costs and productivity forms the basis of leadership for quality. Dess and Lumpkin (2003) define top management as a practical, goal-oriented act that focuses on creating and implementing an original vision. In order to make important changes, and thereby inculcate cultural growth activities and quality culture determination, commitment must be observed by subordinates in their leaders. Employees will view their leaders as role models when their views support quality and lasting enhancement leading to the achievement of the organisation's goals (Uygur & Sumerli, 2013).

Nasseef (2009) states that leadership is a process of changing an organisation from what it is to what the leader intends it to be where the senior managers are expected to contribute to the significance of quality and customer satisfaction and all quality related issues. As profit is not the only focus now, leaders, as Rao (2008) suggests, are expected to have effective skills to lead organisations to the achievement of their set of goals since businesses are changing at a high rate and are facing increasing competition. In addition, competent leaders are those that introduce systems with the aim of enabling the organisation to reach its objectives and which will inspire the employees to commit themselves deeply to their duties and also ensuring that every stakeholder is involved.

There are three known clear imperatives, according to Evans (2005), for managers who seek for quality leadership. First, they must determine a vision; leaders should be visionaries as

they focus on the future, not the past. Change and vision should go hand in hand in an organisation. The fundamental changes in an organisation are used by leaders as they chance to stay close to overall quality. Second, they must be living by the values; the organisation is obliged to live by a range of values including a commitment to customers, teamwork and continuous improvement by quality vision. Third, they must lead to continuous improvement; a continuous improvement process in organisations should be observed by leaders and as essential for TQM. The commitment of leadership and top management mostly determine the effectiveness of a quality development programme or activity. The lower levels of an organisation will be difficult to influence since much work will have already been done. The only thing that can enhance that is the commitment of top management. The process of expressing a clear and convincing vision and which offers a planned leadership for future purposes is what is referred to as management commitment (Tsang & Antony, 2001). A unity of purpose and direction must be determined and displayed by top management. In other words, the internal environment must be generated and maintained so that it can offer employees a chance to comprehensively utilise their abilities (Lewis et al., 2006).

The following are five requirements for effective leadership as observed by Oakland (2003):

1. Develop and issue defined documented vision, business values, purpose and a mission statement.
2. Develop clear and operative strategies and supporting plans for attaining the mission.
3. Recognise the crucial success factors and processes.
4. Analyse the structure of management.
5. Empowerment and encouragement of operational employee input.
6. An organisation cannot be transformed into a TQM organisation if the TQM practices have not been performed in the organisation by the top management or the leadership. It is the task and responsibility of the leadership to guarantee this transformation and ensure its commitment towards the TQM activity. This can be translated into a commitment to the process of empowering people, continuous improvement, and raising the level of organisational goals Seetharaman et al. (2006).

The way leadership can impact TQM can be explained as follows. The 21st century has witnessed the emergence of what is called the learning organisation. Leadership in a TQM organisation will take learning seriously and encourage everyone in the organisation to learn. Learning should be integrated into the fibre of the organisation and it should involve every

element in it and not be an extra optional activity undertaken when there is spare time. Learning activities should be aligned with the organisation's strategy (Sage & Rouse, 2009). Learning must take place at all levels starting from the individual's level to the organisation level. Learning sources are employees' ideas, research findings, sharing best practice, customers' feedback and benchmarking (Sage & Rouse, 2009). Bosher and Hazlewood (2009, p.9) argue that a TQM leadership is *'about imagination, enabling and empowerment of the rank and the file not about status'* The role of the TQM leader is to activate, educate, assist, and more importantly, support colleagues to focus on shared vision, strategy and particularly planned outcomes (Bosher & Hazlewood 2009). The leader's qualities can be inferred from the core of the TQM definition. Kirst-Ashman and Hull (2011, p.173) define TQM as *'a philosophy or overall approach to management that is characterized by customer focus and satisfaction, continuous improvement and teamwork'.* This refers to the duties of the leader in a TQM organisation which are to focus on customer satisfaction as a priority and to enhance teamwork and integrate continuous improvement in the organisational strategy. In TQM, an organisational culture is characterized by teamwork, cooperation, empowerment, flexibility and open communication. The task of the leader in a TQM organisation is to change the organisation and the employees in terms of their behaviour and attitudes (Kirst-Ashman & Hull, 2011). One of the assumptions about strong leadership in a TQM organisation is that it is essential for promoting a quality culture process (Vettori & Rammel, 2014). Quality culture will be discussed in the next section.

2.6.2. Quality Culture

Companies are currently being faced by enormous challenges due to rapid changes in the business environment, which require organisations to respond quickly to enable them to remain competitive. A plan of cultural change is needed to change a business strategy, values, and structure to enable employees and the organisation to bring about such a cultural change. Culture, as defined by Hofstede (2001), is the shared programming of the mind that differentiates the employees of one organisation from another. According to Oakland and Marosszeky (2006), culture is how the business is led, and how employees conduct themselves and are treated. The authors added that culture within the company might be formed by components such as behaviours based on employees interactions, norms resulting from company's working groups, and common values adopted by the company.

At least three components are involved in culture and they include what people think, what they do, and the materials they produce; hence, Youssef (2006) states that knowledge, values,

beliefs and mental processes are all aspects of culture. Within the TQM culture, a supportive and collaborative culture has to be established by the management in which all the staff regardless of their positions have to be made to feel that all of them are in charge and responsible for achieving the company's goals (Gherbal et al., 2012). The success of TQM programme is mainly determined by a quality culture as an organisation having a quality culture can be described as one with defined values and beliefs that raise TQM behaviour. In fact, most notable quality experts, for instance, Deming, Juran and Crosby, identify the significance of a suitable quality culture. Various cultural elements that must experience change for the purposes of sustaining a continuous quality improvement philosophy are also recognised by their work. They highlight that changing the opinion of, and attitudes towards quality is a precondition to main quality improvement efforts as the best way to understand the significance of building a quality culture. Thus, changing culture is observed to be a suitable prerequisite to attempting to implement TQM even though it is partially the purpose of TQM itself. From a quality culture point of view, quality is not a process that can be operated through evaluation and assessment only, but it is also a set of values and practices shared by the organisation environment and community and should be undertaken by all the organisation's levels. Based on this discussion, it can be inferred that culture is not something fixed or stable; it is rather the outcome of an interaction between different participants (Vettori & Rammel, 2014).

To impart culture, change in attitudes, value systems and beliefs are required (Temtime & Solomon, 2002). Additionally, the activities and efforts of people in a working environment, as they stated, are attached by culture. TQM is an educational process focusing on changing organisational members' behaviour and attitudes followed by raising an organisation culture that is quality sensitive. The organisation's members, as indicated by Ganihar (2006), are enhanced to share information through an open culture that is needed to progress the communication from top-to-bottom, bottom-to-top and across the departments. The first most general barrier to TQM implementation, as pointed out by Gotzamani and Tsiotras (2002), is culture change where it is also identified to be amongst the chief determinants for any programme success. According to HBR Essential Series (2003, p.9), cultural change focus on the "human" side of the organisation, such as a company's general approach to doing business or the relationship between its management and employees. A shift from command-and-control management to participative management is an example of cultural change, as is any effort to reorient a company from an inwardly focused "product push" mentality to an outward-looking customer focus.

It is more likely that the TQM programme succeeds in an organisation if the organisational culture is consistent with the basic assumptions and values that underpin TQM. One of the main requirements of the success in implementing TQM is that the organisation has a culture that sees learning as a fundamental condition for the organisation survival. The development of the organisational culture should be the priority of the top management of an organisation (Yuanjian & Mohamed, 2008). A quality culture means that everybody in the organisation is responsible for quality and not only the quality controllers (Vettori & Rammel, 2014). This means that every stakeholder at every level should contribute to the quality culture and reinforce it through practices and behaviour. It is difficult to define what quality is because it can be a subjective matter, which is based on an individual's personal evaluation. However, Taguchi (2001) identify two types of quality: firstly, customer-driven quality which is based on the customers' preferences and desires. The way to achieve this type of quality is to meet the customers' requirements. Secondly, engineered quality which implies producing products that are free of everything the customers do not want such as noise, pollution, and failures. This type of quality can be achieved by lowering the variability around an idea function. The items that are synonymous with customer-driven quality are: 'appropriateness for use, freedom from deficits, and customer satisfaction'. The items that describe engineered quality are problems related to unsatisfied customers, loss caused by variability of work and loss caused by undesirable side effects' (Shiu et al., 2013).

While culture has been defined by some scholars as a system of shared meaning and values, which are reflected in group actions, in the organisation, culture is defined as a set of values and actions that the people of a particular enterprise are expected to follow. Other researchers go further and define an organisational culture as a set of assumptions that are invented and developed by a certain group as it learns to cope with external or internal problems of integration and adoption. These assumptions are also taught to the younger generation (Watson & Howarth, 2012). While some researchers focus on the management role in the quality culture of a TQM organisation, others also stress the significance of the employees' roles in the success of quality culture in an organisation. These are considered as the asset of an organisation and its success depends on how the employees are treated (Watson & Howarth, 2012). These issues should be taken into consideration by the organisation and should be integrated into its policy and strategy.

2.6.3. Policy and Strategy

Companies intending to implement TQM are required to have a well-defined strategic vision for the future and remain focused on it in order to attain their goals through the implementation of the company's mission. As a result of that approach, creativity and potential of employees are supported and released, bureaucracy and costs reduced, productivity improved and quality service to customers and to the community has been embedded in practice (Dahlgaard et al., 2007; Dale et al., 2013). Additionally, Thiagarajan and Zairi (1998) emphasise that policy development, formulating strategic planning, and the effective setting of goals represent critical factors for the success of TQM implementation.

Successful companies create their mission and vision by formulating a stakeholder-based strategy. To actualise the strategy, policies, schedules, targets and processes are created and employed. Therefore, excellent company's criteria are attained through vision and mission implementation where a stakeholder focusing strategy is developed to take market and sector account in which it functions. The criterion for policy and strategy, as stated by Oakland and Marosszeky (2006), focuses on how the mission and vision of a company are implemented through a defined stakeholder-focused strategy, supported by applicable policies, plans, objectives, targets and processes. According to Zairi (1999), utilisation of criteria of excellence from prestigious quality models including the European Foundation for Quality Management (EFQM) and Malcolm Baldrige National Quality Award (MBNQA) constitute applicable approaches to access policy and strategy effectiveness.

A comprehensive review concerning the main stakeholders' requirements, competitors' performance, the conditions of market/industry/sector to form the foundation of top level goals, planning of activities and setting of objectives and targets are the needs of policies and strategies development (Oakland & Marosszeky, 2006).To manage constant advancement and attain business results, that is, strategic objectives and daily control of the business, two levels are applied by policy deployment (Lee & Dale, 1998). A four-step policy deployment process is provided by Duarte (1993) in Lee and Dale (1998) as follows:

1. Prepare the organisation to make policies that will modify the way it operates.
2. Apply contribution from main customers and managers from the main activities of the organisation to create the plan.
3. To ensure achievement of the goals and objectives, organise the policies using a schedule of consistent updates and follow up and through committing resources.

4. To ensure continuous improvement of the process, re-examine the first three steps during the annual review.

In accordance with Zairi (2006), the complexity of the actual process is opposed by the above given simple steps as they fail to highlight that regular control of activities is the basis of policy deployment, identifying the strengths and weaknesses of the performance. Summarising of policy deployment principles can be done through focusing on results only, established on daily control, goals in terms of customers' requirements, through analysis of prior stages; top-down, bottom-up planning; objectives aligned in the organisation to attain common goals; extensive understanding of TQM; means deployed with targets; consistent review mechanism, concentrating on corrective action; and dynamic, flexible, endless development (Lee & Dale, 1998). According to Nasseef (2009), successful policy and strategy is like the steering wheel that keeps companies in an appropriate and constant track with its vision and mission. Additionally, policy and strategy work as a guideline for other key factors such as customer focus, process management, people management etc., to achieve the best results and an excellent performance. In a TQM company, policy and strategy have the stakeholder's needs and expectations as a base for its plans and strategies. Serious steps are taken by the people in charge of policy and strategy to cope with and face the local and global changes and regulations to meet the new requirements. Additionally, a TQM organisation should take into consideration the environmental issues and take the measurements that cope with the needs of different stakeholders (Madan, 2006). The high priority of policy and strategy of a TQM organisation is the customer confidence in the sense that meeting the customers' needs and expectations should be an integrated part of the policy and strategy. Customers' feedback is the first step towards customers' confidence. This feedback can be obtained via customer satisfaction surveys, questionnaires, meetings, complaints and training sessions. Policy and strategy also take as a priority the employees' views and expectations ,which can be provided by focus group meetings and face-to-face discussion. The main strategy is improving open communication at all levels. Caring for society and the local community is also paramount for the TQM organisation. This is achieved by the organisation catering to societal needs and interests such as taking into account matters such as pollution, noise, and being sensitive to the community developmental issues such as providing roads, educational centres, and medical services. In other words, the TQM policy and strategy should endeavour to set a good example to people and society (Madan, 2006). Japanese TQM strategy is based on the principle that every individual in a company is recognised as an expert in their own job. This principle, in fact, satisfies an individual's desire to be recognised

as an important contributor to the success of their workplace. The overall goal of this principle is to create a collective way of thinking that everyone at work is appreciated and valued and contribute in their own way to the prosperity of their community (Hutchins, 2012). The following factor tells the significance of training and development as one of TQM key factors.

2.6.4. Training and Development

In accordance with Farooqui et al. (2008), all organisations' quality systems are highly enhanced by employee training and development where they have obtained management attention due to workflow and accelerating organisational performance's improvement. Tsang and Antony (2001) defines employee training as the fundamental practices that organisations offer to develop specific skills in their employees to enhance the organisational performance, quality, customer satisfaction and decrease time and costs. An increase in training and development of people at work has been observed as an important part of human resource management. Oakland (2003) mentioned that the introduction of new technology and wider collections of tasks needing essential training provision lead to core changes in many organisations. The TQM approach and also the process of learning, as Kanji and Asher (1996) indicate, are highly enhanced by development and training. Focus will be lost by teams if they start to handle quality management problems without appropriate training. To guarantee complete awareness and understanding of quality management's concepts, all employees should be provided with the appropriate training and development since, without employee training, the organisation will experience difficult times when solving production problems and also the employees' attitude and behaviour will not be focused towards the transformation to a quality culture (Dale et al., 2013). Vermeulen and Crous (2000) state that efforts should be focused on an incorporated method to the instruction process when developing TQM training programmes. The entire process, as the authors put it, will automatically fail when appropriate TQM training is not involved. Appropriate TQM training of employees and managers will enhance, then develop, a positive attitude towards the process and commitment towards it as they now understand it.

Training, development and education in a TQM organisation is a necessity for the employees to understand what they have to do and why. They are also important to enable employees to overcome the obstacles that hinder the achievement of the organisation objectives. However, it is not sufficient that employees attend courses about problem solving; the courses must rather be tailored according to the context of the organisation and its needs and expectations

(Spenley, 2012). Training and development is not a temporary process in a TQM organisation; it is a continuous process that should be an integrated part of the quality culture. Senior management conducts training programmes based on TQM. Training courses include group discussion and communication skills, problem identification and problem solving (Arivalagar & Naagarazan, 2009). This introduces the topic of the next section which is about communication**.**

2.6.5. Communication

The effectiveness of the management and the organisation is highly facilitated by communication. When it comes to TQM, timely and accurate information influence other decisions too as it does not only involve passing of information. Processes control is effectively enhanced by communication, which in turn helps in the improvement of quality (Bunse et al., 1998). To see the achievement and competent implementation of a quality system, the involvement of open communication amongst functional areas and across all departments is necessary. A full design for communication channels is needed for the purposes of the cross-functional and cross-organisational nature of quality management. Essential information must be provided to individuals if they are to be at a competitive advantage. Relatively improved performance, as pinpointed by Truss (2001), is observed among employees with essential information and freedom to communicate. A social environment supporting effective interaction amongst all the organisation's members is established by communication. Effective communication is established starting with communicating the values, policies and measures of the organisation to its employees. Thus, the organisation should communicate to its employees about its goal and quality policies without any doubt. To have an effective administrative system with least bureaucratic processes, all employees should be clear about their own roles and responsibilities (Li et al., 2000).

According to ASQ (2015), in any TQM company exchanging the right information between different parties at the right time and continuously every time will ultimately contribute to achieving success. Sila and Ebrahimpour (2002) confirmed the importance of communication in implementing an effective and successful TQM. They indicated that the role and the value of communication across work units and functions ensures that customer requirements and needs are addressed, an environment of trust and knowledge sharing is established and that there is a reliable communication of TQM inside and outside the company. With effective communication, functional performance of employees is considerably amplified. The best

organisations identify communication as a key to their success or failure (Kanji & Asher, 1996 in Thiagarajan & Zairi, 1998). Hence, effective communication is needed to develop awareness and commitment to quality in an organisation's environment as it is essential for TQM implementation.

Communication is paramount not only between the managers and the employees, but also among all the levels in a TQM organisation. Charantimath (2011) points out that communication can be classified into three categories: downward communication, upward communication and lateral communication. Downward communication can be exemplified in discussions and presentations. They are well-known methods of communication where the managers and supervisors can make it easy for the employees to understand TQM principles. Upward communication is where the employees offer suggestions to the upper management about the effects of TQM elements. Management should take this type of communication seriously and use the comments made by the employees to correct some situations. This has a positive impact on the relationship between the managers and the employees and it also contributes to employee empowerment. Lateral communication functions as breaking barriers between departments. According to Kanji (2012), communication is also needed for explaining issues about the employees' roles and responsibilities and the processes involved in the process management. Process management is discussed in the next section.

2.6.6. Process Management

Process management, as defined by Tsim et al. (2002), is the use of a system of processes in an organisation, as well as identification and connections of these processes together with their management. The entire system should be observed as the homogenous system with no separate parts. Improving processes, increasing quality levels, and developing productivity per employee are highlighted by process management. Additionally, it highlights processes examination and reformation to eradicate issues and inadequacies in the organisation (Dahlgaard et al., 2007).

According to Ludwig-Baker (1999), an intended result is attained more proficiently when organisations' activities and resources are managed as a process. Hoyle (2001) stated that inputs are not transformed into outputs which fulfill needs when the process reaches to management. There is a distinct purpose and objective which is on the basis of the needs of the interested parties and is called a managing process. It is designed to achieve the purpose and object using responsibilities which utilise capable human, physical, financial resources and information. As a result, outputs which fulfil the desires of the interested parties in the

organisation that measure, evaluate and constantly develop the process usefulness and success are generated.

The effectiveness of process improvement will be determined by process measurement where an understanding of how processes operate can be increased. How much equipment downtime occurred on the second shift? How many delays were encountered when entering or filling customer orders? and why were the anticipated results not produced by the operations? (Lee & Dale, 1998). The act of adding value and surpassing what the customer expects is the only way to design an effective process. In the same context, Zairi (1999) stated that companies of high-performance have developed their activities from the usual function-based approach to a process driven by customers. According to Jorgensen and Nielsen (2013), within TQM philosophy having a process based approach confirms the necessity of having processes designed to meet company's quality requirements. Moreover, it is critical that the core processes are identified and supported to assure appropriate resources are available to inspect, map and improve these processes.

In a TQM organisation, the focus is not on formal systems or structures. Rather, the focus is placed on setting up process management teams to solve the organisational problems. The essential point, in this case, is to enlighten employees of their responsibilities with the organisation and the processes in it. The success of an organisation is based on its focus on the processes, i.e. activities and tasks themselves rather than on abstract issues (Kanji, 2012). Process management includes the several of behavioural and methodological practices that emphasis on activities and actions, rather than results. Process alignment is the key issue for success in an organisation. This starts with the mission statement of the organisation, critical success factors analysis and then critical processes. These three factors can ensure the organisation’s people engagement in the change process. A number of change programmes have not succeeded because the organisation has started the change process from changing the employees’ knowledge and attitudes, believing those employees’ behaviour changes through the organisation (Flynn et al., 1994). In fact, this is not the case; people’s behaviour is decided by the roles and the responsibilities they take up in an organisation. If the organisation creates new roles, new responsibilities and team roles for the employees, they will be in a new situation where they focus on the processes. This will create a change in the organisation culture. Teamwork is very important to create the change. Commitment is paramount for cooperation and effort required for performing these processes as well as knowledge and interpersonal skills (Kanji, 2012).

Clearly, implementing quality initiatives such as TQM involves a change process. However, many authors, such as Andrzej and David (2001), have cautioned against over reliance on prescriptive recipes for change due to the high failure rate of many of these approaches. One approach to change is the now, somewhat dated, 3 step model of Lewin 1951. Despite its age, it has been defended as still relevant by Burnes (2004), although more recently criticised for its naivety and top-down managed approach by Cummings et al. (2016). However, the fact that Lewin's model still merits attention over 60 years later at least means that it still merits some attention. It is a force field model for change, which is based on an equilibrium between forces for change and restraining forces. This equilibrium is in a frozen state, but once the field is fully understood, it can be changed so that a new equilibrium between forces for change and restraining forces comes into effect. It is a realistic model in recognising that resistance to change will still tend to persist even after the change process has been implemented.

D'Ortenzio (2012) suggest that for companies to gain the competitive advantage over their competitors, there has to be effective change and change management processes in place. These processes can include different elements such as organisational structure; organisational culture; organisational control; technological developments; transformational relationships. According to Hansson (2003), the implementation of TQM is a complex process, since all organisation's staff regardless of their levels and positions need to accept a fundamental change. Thus, management should strongly devise effective ways of promoting change in the company, whilst at the same time encouraging all employees to accept the change. Having said that, organisations that seek to change by adopting TQM must have efficient processes and practices in place to manage those changes.

By using the process management according to TQM principles, traditional methods of dealing with customers have been changed (Kanji, 2012). Hence, customer focus is the topic of the next section.

2.6.7. Customer focus

The main factor of TQM, in accordance with Richards (2012), is customer focus. Richards emphasises that quality is defined by the customer and not by the organisation or the product or service manufacturer, since quality is what the end user expects. Hence, customer focus is what makes a quality improvement programme. According to Burns and Bush (2006), customer focus and relationships are given more attention since competition within a forceful

business environment is rapidly increasing in all production and manufacturing areas. Chan and Chan (2004) pinpoint how many companies focus on customer satisfaction to attain competitive advantages in order to distinguish themselves from their competitors. Additionally, that is a better way to improve quality through different methods in growing and monitoring products and providing services.

There are two common conceptualisations of customer satisfaction as Gable (1996) indicates. The first one is the transaction-specific conceptualisation that symbolises a person and precise experience satisfaction. The second is the cumulative satisfaction which is based on previous, current experiences and future expectations. Subjective opinions, on the basis of objective issues, as stated by Samwinga and Proverbs (2003), are contained in many measurement methods of customer satisfaction and therefore, customer satisfaction can be measured by organisations through listening to their response and complaints, creating focus groups and issuing service assessment cards to collect more information from them (Evans, 2005). There are various ways, as highlighted by Xiao and Proverbs, (2003) which can benefit companies from customer focus measurement and these include communication improvement between parties, identification of the need for process development, comprehensive understanding of issues, progress assessment towards the goal, following and reporting fulfilled results and changes. The way an organisation establishes customer needs and anticipations, as Evans and Lindsay (2001) define it, is known as customer satisfaction. In this case, when the customer is satisfied, the organisation will be successful. Customer needs are the first priority of a TQM Company and will react immediately towards them. Since customer focus attracts many advantages, measuring their satisfaction will make an effective business strategy. The following issues are involved in the advantages of customer satisfaction measurement (Youssef, 2006):

1. Recognising strategies for service improvement.
2. Understanding customer anticipations.
3. Evaluating general reasons that lead to customer dissatisfaction.
4. Improving customer retention.
5. Treating the customer in a valued manner.
6. Uncovering missed opportunities to prove your ability to solve problems and win back customers' trust.
7. Enhanced competitive position.

In a TQM organisation the customer is ‘supreme’; this is not only a slogan displayed by the organisation but this is ‘faith’ (Ganihar, 2006). Customer focus is generally regarded as the most important TQM principle (Dean & Bowen, 1994). Successful organisations are based on their customer satisfaction and loyalty. It is worth mentioning that customers’ expectations are not a fixed state but rather they are dynamic and flexible and the successful organisation is the one that takes this flexibility and dynamism into consideration (Ganihar, 2006). An organisation needs to perform according to customer-based standards. There are some features which are salient for an organisation to achieve success as far as customer focus is concerned. For example, one of these features is making the customers and their feedback and expectations a starting point for change. This means that an organisation should adapt its strategies and plans to meet the customers’ expectations and needs. The second feature is designing the organisation work process in the light of organisational goals, which means that in this case the organisation will be more customer focused. Based on organisational goals, an organisation can make changes in terms of work process and empower employees to meet the requirements of organisational goals. The third feature is restructuring to assist the front line performance which means that an organisation endeavours to provide a high level of customer service especially those who are in direct contact with the customers (Madan, 2006). According to Mandal (2009), customer focus is the major means of TQM for improving business performance. The next section focuses on the need for continuous improvement.

2.6.8. Continuous improvement

Continuous improvement is the planned, organised and systematic process of continuing, incremental and company-wide change of current practices meant to enhance company performance (Boer & Gertsen, 2003). The main goal of TQM implementation is achieving constant performance improvement and business superiority. (Chin & Pun, 2002). The establishment of production systems based on overall quality management will be attained through constant improvement as considered by many authors (Marin-Garcia et al., 2008). There are three different levels in the organisation, as indicated by Bhuiyan and Baghel (2005) which continuous improvement can occur and they include the levels of the management, group and individual. The effects of continuous improvement at the management level are on the strategy of the organisation. Problem-solving tasks at a broad level involve group level continuous improvement, whilst at the individual level, continuous improvement involves improvement on a micro scale, that is, daily tasks. Various kinds of work environments can attain the benefits of continuous improvement programs when

applied. Managers can be enhanced to decide on the best approaches to apply to effectively implement improvement practices by assessing the product design, process choice as well as the measurement of standardisation in the organisation.

Continuous improvement is represented by the Deming cycle or the -PDCA-cycle and entails four phases including plan, do, check and act. The goals and processes needed to deliver results in line with customer demands and needs and the policies of the organisation are determined by the "plan". The processes are implemented by the "do". Then, the processes and products are monitored and measured against policies, goals and needs and reports on the results by the "check". Processes and system performance and ensured to progress continuously by the "act" (Lewis at al., 2006). There are various types of improvements, as specified by Evans (2005):

1. Improving value to the customer using better products and services.
2. Enhancing productivity and operational performance using improved work processes and reductions in errors, defects, waste.
3. Advancing flexibility, responsiveness and cycle time performance.
4. Enhancing processes of organisational management via learning.

Companies are recommended to put more efforts into goals, for example, maintaining and improving quality, improving performance, lessening lead times and improving delivery reliability, if they intend to implement continuous improvement as a constant process to maintain a competitive position (Hyland et al., 2000). Tools which apply to individuals in the organisation must be considered by companies if they desire to attain the specific goals. This means that the selected tools should be used and understood by employees to enhance their knowledge of exactly what they are doing. According to Aswathappa (2008), TQM is a process based on three elements: 'customer satisfaction, employee empowerment and involvement and continuous improvement'. It is a philosophy and a process of continuous improvement at all levels of the organisation, while the core of this process is customer satisfaction (Aswathappa, 2008). Continuous improvement is based on measuring key qualities and other processes and taking appropriate measurements to improve them. The focus of continuous improvement is to find the deficits and sources of inconsistency in managerial, service and manufacturing processes that can detract from the quality output and improve the process to remove unwanted output. Thus, the objective of continuous improvement is improving the process in order to achieve two goals: increasing customer

satisfaction and decreasing the cost (Bagad, 2008). According to Hyland et al. (2000), if the organisation is seeking process to utilise continuous improvement as on-going process to maintain a competition position in its industry then, it needs to concentrate on goals such as sustaining and improving quality, increasing customer satisfaction, decreasing cost, and improving delivery and reliability. Therefore, to achieve these goals organisation must follow series of activities performed by human and nonhuman resources that lead to improve the overall performance. The following section briefly summaries the aforementioned TQM key factors.

2.6.9. Summarising the TQM key factors

In summation, based on the above TQM key factors, the implementation of the TQM in a company is linked to the presence of a number of factors; the most important of which are: firstly, top management commitment, which means that the leadership of a TQM organisation should always motivate and inspire individuals to work hard to achieve organisational goals. TQM leadership also supports employees and colleagues to work hard to achieve the vision and mission of the organisation. Secondly, quality culture, which means that everybody in the organisation is responsible for quality and not only the quality controllers. The most effective quality is the customer-driven quality, which is based on satisfying the customers' needs. Thirdly, policy and strategy whose success is connected with their ability to apply their vision and mission to customers, employees, stakeholders, and society at large. In a TQM organisation policy and strategy take the stakeholder's needs as a base for its plans and strategies. Customer confidence is the high priority of policy and strategy in a TQM organisation in the sense that meeting the customers' needs and expectations is considered an integrated part of the policy and strategy. Fourthly, training and development, which means that core changes in an organisation do not take place unless the staff at all levels is subject to continuous training and development. Training and development enable employees to be updated with the recent technology and principles that help to move the organisation forward. Learning and training and development are not temporary courses that have an end. They are a continuous process. Fifthly, communication, which points to that the success of an organisation is conditioned with the success of communication, among the functional areas and across all departments is necessary. If there is a breakdown in communication between managers and employees the former will not understand the problems that the latter face and they will not be able to solve them; which leads to greater problems. At the same time, the managers will not be able to deliver their message to the employees about how work should

be done. Sixthly, process management, which refers to the fact that a formal system, is not the focus in a TQM organisation. Rather, the focus is placed on establishing process management teams to solve the organisation's problems. The main point is to align employees and their responsibilities with the organisation and the processes in it. Seventhly, customer focus which, refers to the fact that satisfying customers is the core of the success of a TQM organisation. This means taking the comments and needs of the customer into consideration and seriously attempting to create a quality culture that meets the needs and expectations of the customers. Eighthly, continuous improvement, which points to the fact that there should always be a plan to enhance company performance. Achieving constant performance improvement is the general goal which relates to TQM concepts. Establishing production systems based on overall quality management will be possible through constant improvement. Table 2.1 shows the TQM factors that have been identified in this study as being significant to the successful TQM implementation and the literature support.

Table 2.1 Comprehensive list of key factors of TQM and literature review support

Key factors of TQM	Supporting Literature review
Top management commitment or leadership	Zairi, (1999); Goetsch and Davis (2000); Dess and Lumpkin (2003); Nasseef (2009); Rao (2008); Tsang and Antony (2001); Lewis et al. (2006); Oakland (2003); Bosher and Hazlewood (2009); Vettori and Rammel (2014); Feigenbaum (1991); Crosby (1979); Motwani (2001); Saraph et al. (1989); Flynn et al. (1994); Al-Omaim (2002); Baidoun (2003); Lewis et al. (2006); Koh and Low (2010); Kumar et al., (2011); Hietschold et al., (2014); Ismail (2012); (2014); Dedy et al. (2016); Neyestani and Juanzon (2016); Youssef, (2006).
Quality Culture	Black and Porter (1996); Gherbal et al. (2012); Hietschold et al. (2014); Rad (2006); Ismail (2012); Oakland and Marosszeky (2006); Temtime and Solomon (2002); Gotzamani and Tsiotras (2002); Watson & Howarth (2012); Tsang and Antony (2001); Evans and Linsday (2001); Oakland (2003); Tsang and Antony (2001).
Policy and Strategy	Zairi (1999); Black and Porter (1996); Motwani (2001); Al-Omaim (2002); Baidoun (2003); Lewis et al. (2006); Hietschold et al. (2014); Evans and Linsday (2001); EFQM, (2010); Oakland and Marosszeky (2006); Lee and Dale

	(1998); Nasseef (2009); (Madan 2006).
Training and Development	Crosby (1979); Vermeulen and Crous (2000); Motwani (2001); Al-Omaim (2002); Youssef (2006); Ismail (2012); Lewis et al. (2006); Kumar et al. (2011); Gherbal et al. (2012); Hietschold et al. (2014); Dedy et al. (2016); Neyestani and Juanzon (2016); Tsang and Antony (2001); Kanji and Asher (1996).
Communication	Crosby (1979); Ismail (2012); Black & Porter (1996); Kumar et al. (2011); Gherbal et al. (2012); Hietschold et al. (2014); Dedy et al. (2016); Zairi (1999); Sila and Ebrahimpour (2002); Oakland (2003); ASQ (2015); Jabnoun (2005); Kanji (2012).
Process Management	Motwani (2001), Flynn et al. (1994); EFQM (2010); Black and Porter (1996); Youssef (2006); Ismail (2012); Lewis et al. (2006); Koh and Low (2010); Hietschold et al. (2014); Neyestani and Juanzon (2016); Tsim et al. (2002); Lee and Dale (1998); Kanji (2012).
Customer focus	Flynn et al. (1994); Black and Porter (1996); Al-Omaim (2002); Baidoun (2003); EFQM (2010); Youssef (2006); Ismail (2012); Lewis et al. (2006); Kumar et al. (2011); Hietschold et al. (2014); Dedy et al. (2016); Tsang and Antony (2001); Neyestani and Juanzon (2016); Richards (2012); Evans and Linsday (2001); Dean and Bowen (1994); Mandal (2009); Chin and Pun (2002).
Continuous improvement	EFQM (2010); Youssef (2006); Ismail (2012); Al-Omaim (2002); Pun (2002); Baidoun (2003); Lewis et al. (2006); Koh and Low (2010); Kumar et al., (2011); Chin & Pun (2002); Al-Khalifa and Aspinwall, (2001). Tsang and Antony (2001).

The next section focuses on reviewing the common barriers, which are discussed in the empirical body of knowledge in relation to the implementation of TQM.

2.7.Barriers to implementing TQM

The implementation of TQM in an organisation is not unproblematic. Although there is much evidence regarding the success of TQM implementation, the credibility of TQM has been challenged by the failure in many companies working in different kinds of industries. This means there are a number of obstacles that create barriers for TQM implementation. According to Jacobsen (2008), understanding the main factors that are likely to hinder the implementation of TQM urges the decision makers to develop effective strategies for improving the opportunities of successful TQM implementation hence, moving towards excellence in the business.

2.7.1. The general barriers of TQM implementation in different industries

The literature revealed that several companies in developed and developing countries have encountered different challenges and barriers in implementing TQM. Therefore, a multitude of studies addressed different ways for the identification of the factors that impede the successful implementation of TQM in these countries. For example according to a survey of 250 companies in the United Kingdom, Wilkinson and Witcher (1991) pointed out that, although the important role of TQM towards achieving the best results was recognised, the study, however, revealed the barriers that impeded effective TQM implementation. These barriers can be classified into four main groups: reluctant managers, organisational segmentation, industrial relation and short-termism. Sebastianelli and Tamimi (2003) performed a national survey in the United States basing it on a sample of quality managers to examine the TQM barriers associated with managing and dealing with a successful quality transformation. The study clarifies that weak leadership for quality, lack of customer focus, poor planning for quality, inadequate human resources management, and inadequate infrastructure represented the most prominent barriers to TQM implementation. In Mexico, a study of 43 organisations in Maquiladora industry were conducted by Jun et al. (2004) where a high turnover of the employees was identified as the main barrier. Also, lack of employees training, lack of relating compensation of management with quality goals' attainment and employee resistance to change were other barriers identified in Maquiladora and United States companies.

From another perspective Whalen and Rahim (1994) pointed out that several barriers played a major role in terms of hindering the development and implementation of TQM; these were lack of management commitment, poor planning, the strength of the labour force,

complacency, lack of proper training, use of an unreliable programme, insufficiency of resources, the inability to change the organisational culture, and the lack of improvement of the quality of the measurement. Salegna and Fazel (2000) conducted a survey among 2000 manufacturing companies in the United States and found that inadequate time, poor communication and poor employee empowerment were identified as the main barriers facing organisations from developing TQM. On the other hand, lack of motivation, inadequate time and lack of strategic planning for change were barriers facing those organisations that did not employ TQM.

In the same vein, barriers to TQM implementation in the UK manufacturing industry were clarified by Nwabueze (2001) through the following points: changing the culture of the organisation, lack of management commitment, lack of teamwork, lack of strategic planning, concentrating on short-term profits, ineffective measurement approaches, lack of education and training, high employee turnover, employees' fear of losing their jobs and management failing to reward success or improvement. In Malaysia, Shaari (2010) found that lack of commitment from the management, implementation cost, short-term goals, and failing to understand the concept were the main barriers to implementation of TQM. In a study which covered 1000 quality managers, 175 British and 127 Australian companies were selected by Burcher et al., (2010) for research purposes. As a result, the major TQM implementation barriers were poor communication, lack of commitment, organisational inactivity, and inadequate resources. The core important TQM implementation barriers in the Turkish construction industry were identified by Polat et al. (2011) as a lack of commitment, support, and poor leadership from the top management. Another Turkish study conducted by Sadikoglu and Olcay (2014) on companies in Turkey's Kocaeli-Gebze Organised Industrial Zone indicated that the major barriers to successful implementation of TQM were not only unsuitable company structure that did not support TQM implementation, but also lack of the resources, and lack of employee participation, awareness and commitment toward TQM implementation.

In Indian industries, TQM implementation faced challenges as a result of employees' resistance to change, lack of management commitment, lack of proper training and failure to benchmark as noted in the findings of Bhat and Rajashekhar (2009). Likewise, Johnson (2013) argues that the main barriers to the implementation of TQM are the lack of benchmarking, employee resistance to change and insufficient resources. It should be noted that involvement of workers in the TQM planning and execution phases, as well as proper

training on TQM, can help reduce resistance. The shortcomings and strengths of a company can be identified through benchmarking.

Mosadeghrad (2014) analysed 54 TQM empirical studies conducted in 23 developed countries over the past 30 years, (1980-2010), of implementing TQM. The study found that inadequate training and education, lack of employee participation, lack of top management commitment, poor leadership, lack of financial support, insufficient resources, lack of Government support, lack of communication, poor of quality-oriented culture, poor delegation, bureaucracy and employee resistance to change were the major barriers to TQM implementation. Ineffective TQM implementation, as determined by Zain and Amar (2004) when they performed a study of 364 organisations in Indonesia, was caused by barriers related to human resources management, inter-functional relationship, organisational culture, bureaucracy, management attitude toward quality, information, processes and equipment method and training.

A survey in Iran concerning TQM implementation was conducted by Rad (2006) where he determined the main barriers of TQM implementation to include poor management control, lack of teamwork and inadequate response to internal and external needs of the customers, lack of will to change the culture, poor organisational response to environmental changes. An empirical study was conducted by Awan, et al. (2009) on pharmaceutical firms in Pakistan. The researcher found that lack of adequate commitment and support for TQM implementation from the top management was considered to be the major barrier to TQM implementation. Another study carried out in Pakistan by Khan (2011) to investigate the major barriers that hindered TQM implementation in service organisations, revealed that lack of employee training, resistance to change, lack of empowerment to implement quality improvement, and insufficient resources for TQM represented the most significant barriers to TQM implementation.

Moreover, additional studies conducted by other researchers and scholars such as Masters (1996); Dowlatshahi, (1998); Lawrence and Yeh (1994), Martínez et al. (2000); Huq (2005); Osuagwu (2002); (Kumar et al., 2011); Whalen and Rahim (1994); Dale (1997); Badrick and Preston (2001), have revealed different kinds of barriers that impeded successful implementation of TQM in different industries.

The above studies have shown that although numerous companies applied TQM, many of them have faced significant barriers to attain the expected results and objectives. Therefore,

companies seeking to attain success results associated with TQM implementation should start by studying and identifying these barriers.

Since this research is conducting in Iraq, which is considered to be one of the developing Arab countries and due to the lake of empirical efforts to study the barriers or obstacles that hinder the TQM implementation in Iraq, therefore, it is worthwhile to shed light on the barriers and challenges that impede TQM implementation in some Arab countries where they have a similar business environment to that of Iraq. Therefore, the next section will discuss TQM barriers facing companies implementing TQM in Arab countries.

2.7.2. TQM barrier in Arab countries

According to Sila and Ebrahimpour (2002), reviewing the TQM research implemented in different countries has shown that there is a lack of evidence and understanding about the nature and phase of TQM implementation in many countries in general and developing countries in particular especially in South America, Africa, and the Middle East. Lakhe and Mohanty (1994) suggest that there are many barriers impeding TQM implementation in different companies in developing countries. These barriers include insufficient knowledge and information regarding TQM, weakness of communication, lack of top management support and innovation, poor employee participation and involvement, lack of governmental support, weaknesses of technologies, inadequate level of education, poor customer awareness and difficulty in assessing customer satisfaction, resistance to change, difficulty in terms of measuring the effectiveness of TQM. Al-Marri et al. (2007) state that, in the Arab countries, the phenomenon of TQM is relatively new. The evidence has shown that there is a paucity of awareness and knowledge of the key factors influencing the process of TQM implementation and the methodology whereby these key factors should be addressed and managed.

The literature review shows that many Arab companies in different industries encountered difficulties to reach the expected results of TQM. In Qatar, Khalifa and Aspinwall (2000) conducted a study of 143 companies from the services, manufacturing and public sectors. The results of this study revealed that an authoritarian and hierarchical organisational structure, lack of managerial commitment, resistance from employees and managers, insufficient managerial competencies, inadequate infrastructure and non-supportive human resources management practices were the most important barriers affecting TQM implementation.

In Yemen, Al-Zamny et al. (2002) carried out a study on governmental companies. The researchers sought to identify the challenges and barriers that hindered TQM implementation. The study clarified that there were three major barriers impeding effective TQM implementation. These barriers were culture, inadequate support for quality initiatives and lack of managerial experience. In Egypt, an empirical study was conducted into Egyptian manufacturing companies by Salaheldin (2003). The study found that there were resisting forces which hindered the successful implementation of TQM and these included poor training, insufficient infrastructure, workers' unwillingness to contribute to decision-making and an inadequate knowledge base where they have been agreed on by various Egyptian manufacturing companies.

Another empirical study was conducted in the Jordanian information and communications technology sector by Twaissi et al. (2008). The study revealed that the most significant barriers to TQM implementation in Jourdan were influences from the government policy, weaknesses of organisational culture, lack of continuous improvement, and weakness of employee empowerment.

In Algeria, Berrouiguet (2013) identified four major barriers that impeded TQM implementation in Algerian manufacturing companies. These barriers were lack of top management support, a significant shortage of the knowledge and skills required to implement TQM, cultural change and inadequate financial resources.

Alsughayir (2014) conducted a study to examine the barriers to implementing TQM in private medical services organisations in Saudi Arabia. The findings of the study revealed that the most significant barriers to TQM efforts included high employee turnover, which meant that the organisations focused more on employees' performance, rather than improvements in quality. This is an indication that these organisations do not consider quality as an organisational objective. Also, lack of understanding of the TQM philosophy is considered as a primary impediment to its successful implementation. In addition to lack of motivation among employees would as well cause them to resist change due to lack of understanding of TQM concept and its importance.

Based on the aforementioned discussion, it is evident that the implementation of TQM is essential in many organisations because it provides it with a competitive advantage. However, most of the companies in developing countries in general and in many Arab countries in particular are still in the initial stages of TQM and face difficulties and challenges towards

implementing TQM effectively due to various barriers. In practice, it is essential to identify and address these barriers in order to facilitate achieving the high-performance management applications required for effective TQM implementation. Therefore, management of these companies should have comprehensive insights on impacts of these barriers on organisational goals. Awareness of these barriers would allow managers to respond proactively to prevent the rise of barriers within the company early enough.

Supporting the aforementioned discussion, Table 2.2 illustrates the most common TQM barriers, as reported in the literature, which hinder the success of TQM implementation.

Table 2.2 TQM barriers and their references as identified from the literature review

Barriers of TQM	References based on TQM literature
Lack of top management commitment	Sebastianelli and Tamimi (2003); Whalen and Rahim (1994); , Shaari (2010); Burcher et al. (2010); Polat et al. (2011); Mosadeghrad (2014); Awan, et al. (2009); Lakhe and Mohanty (1994); Khalifa and Aspinwall (2000); Al-Zamny et al. (2002); Berrouiguet (2013); Masters (1996);
Poor of proper training and education	Jun et al. (2004); Whalen and Rahim (1994); Nwabueze (2001); Johnson (2013); Mosadeghrad (2014); Amar and Zain (2004); Khan (2011); Lakhe and Mohanty (1994); Salaheldin (2003); Bhat and Rajashekhar (2009); Huq (2005)
Lack of employee empowerment and participation	Salegna and Fazel (2000); Sadikoglu and Olcay, (2014); Mosadeghrad (2014); Khan (2011); Lakhe and Mohanty (1994); Twaissi et al. (2008); Osuagwu (2002); Whalen and Rahim (1994)
Poor planning	Whalen and Rahim (1994), Salegna and Fazel (2000); Sebastianelli and Tamimi (2003); Masters (1996); Whalen and Rahim (1994)
Unqualified human resource	Whalen and Rahim (1994), Sebastianelli and Tamimi (2003); Amar and Zain (2004); Khalifa and Aspinwall (2000); Al-Zamny et al. (2002); Catalin et al., (2014), Bayazit, (2003)
Resistance to change	Jun et al., (2004); Whalen and Rahim (1994), Nwabueze (2001); Bhat & Rajashekhar (2009); Johnson (2013); Mosadeghrad (2014); Rad (2006), Khan (2011); Lakhe and Mohanty (1994); Khalifa and Aspinwall (2000); Salaheldin (2003); Berrouiguet (2013); Alsughayir (2014); Whalen and Rahim (1994); Talib et al. (2011)
Poor understanding and awareness	Shaari (2010); Sadikoglu and Olcay (2014); Lakhe and Mohanty (1994); Salaheldin (2003); Berrouiguet (2013); Alsughayir (2014); Al-Marri et al. (2007); Masters (1996); Dale (1997)

Poor communication	Salegna and Fazel (2000); Burcher et al. (2010); Mosadeghrad (2014); Lakhe and Mohanty (1994); Huq (2005); Dale (1997)
Lack of customer focus	Rad (2006); Lakhe and Mohanty (1994); Sebastianelli and Tamimi (2003); Dale (1997)
Lack of teamwork	Nwabueze (2001); Bayazit (2003); Rad (2006); Kumar et al. (2011); Gunasekaran (1999); Mosadeghrad (2014); Catalin et al. (2014); Boon Ooi et al. (2007)
Inadequate resources	Burcher et al. (2010); Whalen and Rahim (1994); Sebastianelli and Tamimi (2003); Sadikoglu and Olcay (2014); (2009); Johnson (2013); Mosadeghrad (2014); Khan (2011); Khalifa and Aspinwall (2000); Salaheldin (2003); Masters (1996)
Employee turnover	Nwabueze (2001); Alsughayir (2014); Dowlatshahi, (1998); Lawrence and Yeh (1994), Talib et al. (2011)
Lack of motivation	Salegna and Fazel (2000); Mosadeghrad (2014); Alsughayir (2014); Catalin et al. (2014)
Lack of benchmarking	Bhat and Rajashekhar (2009); Johnson (2013); Jun et al. (2004)
Poor quality culture	Mosadeghrad (2014); Amar and Zain (2004); Talib et al. (2011); Catalin et al. (2014); Alsughayir (2014)
Organisational culture	Amar and Zain (2004); Rad (2006); Khalifa and Aspinwall (2000); Twaissi et al. (2008); Masters (1996)
Lack of information	Lakhe and Mohanty (1994); Martínez et al. (2000); Catalin et al. (2014)
Lack of government support	Lakhe and Mohanty (1994); Twaissi et al. (2008); Mosadeghrad (2014); Rad (2006)
Lack of continuous improvement	Twaissi et al. (2008); Mosadeghrad (2014); Huq (2005); Whalen and Rahim (1994), Talib et al. (2011)
Insufficient financial resources	Berrouiguet (2013); Mosadeghrad (2014); Catalin et al. (2014)
Bureaucracy	Mosadeghrad (2014); Amar and Zain (2004); Osuagwu (2002); Badrick and Preston (2001); Dale (1997), Catalin et al. (2014); Jamaluddin (2014).
Lack of delegation	Mosadeghrad (2014); Ishikawa (1985); Khalifa and Aspinwall (2000); Dale (1997)

2.8.The benefits of TQM implementation on performance improvement

Performance improvement is an operational philosophy adopted by management to benefit customers, employees, suppliers and shareholders alike in a context where quality improvement is a major organisational strategy to achieve a competitive advantage. The performance improvement programmes cannot be ignored in a company as they directly benefit the bottom line while providing a competitive advantage (Gharakhani et al., 2013). In particular, TQM is a management philosophy designed to harness the human and non-human resource that an organisation possesses in the most effective way to achieve its organisational goals (Morrow et al., 1997). The benefits which could be acquired by companies that associate themselves with adoption and implementation of TQM have been highlighted by various scholars. Amongst them are Chin and Pun (2002, p.273) who claimed that *"The implementation of TQM can generate improved products and services, reduced costs, more satisfied customers and employees, and improved bottom line financial performance".*

Al-Khalifa and Aspinwall, (2001) stated that TQM had the potential to change a company from being inadequate with an autocratic management and structural control to an environment of teamwork, focusing on the continuous improvement of its internal and external activities. According to Ho (2011), TQM provides a systematic approach towards quality improvement by merging service and product specification with customer performance to facilitate specifications with zero defects. Vouzas and Gotzamani (2005) asserted that implementation of TQM played an important role in terms of reducing customer complaints; this was mainly due to the fact that the competence and productivity of quality systems constituted a significant improvement in customer satisfaction (Tsim et al., 2002). Hence, better customer satisfaction, improvement of profitability and expansion of market share can be gained by companies that apply the TQM philosophy (Saizarbitoria, 2005). The productivity of the company will also increase if the TQM concept is applied effectively (Montes et al., 2003). Also, Kumar et al. (2009) presented evidence of the positive impact of TQM on the company's performance. This related to four areas of company performance, specifically, enhanced employee relations, waste reduction, customer satisfaction and improving financial results through cost reduction and an increase of profitability. Additionally, the market share and productivity of companies that employed TQM can be improved. Apart from that, cost, waste, time and modification can be reduced, thereby improving products and service quality (Huarng, 1998). Moreover, Awan and Bhatti (2003) indicate that employee satisfaction, motivation and determination are improved by TQM

implementation. Therefore, TQM is expected to create a virtuous cycle of continued improvements that will boost customer and employee satisfaction, productivity and profitability.

However, Moballeghi and Moghaddam (2011) noted that even though TQM had the potential for being effective in enhancing performance, various companies failed to achieve the associated benefits as they remained entrapped in "quality confusion." In a bid to avoid these ambiguities, it became necessary to examine the positive effects of applying TQM to improving company performance. Such a venture would be appropriate to understand the benefit of the TQM philosophy.

Accordingly, the following sections seek to examine the main benefits and results of applying TQM in companies with the focus being on the effects that TQM has on improving the various aspects of the companies' performance, such as improving customer satisfaction, employees, financial and operational, environmental performance. These results in overall organisational improvement for future sustainability and growth.

2.8.1. The positive effects of TQM on customer satisfaction

The success of the company in the longer term depends on how effectively it focuses on its customers on a constant and regular basis (Brah et al., 2002). Parzinger and Nath (2000) found a positive relationship between TQM practices and customer results. Moreover, most quality award models like MBNQA and EFQM recognise customer results as a significant TQM outcome. Gherbal et al. (2012) stated that customer satisfaction formed the most important focal point for any company and played an essential role in successful TQM implementation. In the same manner, Dean and Bowen (1994) observed that customer satisfaction is considered to be one of the most significant requirements for long-term organisational success. With open communication enhanced among employees, suppliers and customers, it becomes possible for the true voice of the customer to be understood readily. As the quality operation places greater emphasis on the work process as well as improvements, this enables companies to come up with enhanced products/services for the market, facilitating the achievement of improved customer satisfaction (Yazdani et al., 2013). Essentially, Besterfield et al. (2012) noted that TQM implied that organisations should give greater consideration to meeting and exceeding customer expectations to the delight of customers. This implies that the resulting products from TQM are likely to be relatively error-free, which translates to reduced customer complaints. Therefore, understanding the needs

and expectations of customers in respect of a company's products is critical to winning and maintaining the existing business by the companies. To provide quality services and products, it becomes crucial for each company to persistently examine the quality of the firm's system to ensure their responsiveness to the ever-changing requirements and expectations of the customers.

Companies should, therefore, design robust systems for collecting information from customers to determine what they think about the products and services. With the focus being on customer satisfaction, the company extends links with customers to address any complaints. Hereby, the customer complaints are approached as opportunities for improving products and services and the enhanced customer relations enable the company to achieve customer retention (Besterfield et al., 2012). Moreover, Oakland (2003) noted that TQM was designed to enable all parties to be involved in detecting and addressing quality issues for the ultimate benefit of the customer. To achieve customer satisfaction, attention is given to enhancing the quality of customer contact and promotion of value proposition. As is evident, TQM promotes the creation of relations with customers, which is crucial for companies seeking to attract and maintain customers.

With satisfaction being one of the principles behind TQM, the customer focus given by the entire organisation is aimed at meeting customers' needs and requirements. Customer satisfaction is considered to be achieved once the products or services have met or exceeded customers' expectations (Ganihar, 2006). Dehkordi et al. (2015) noted that product quality satisfaction was an important aspect of customer satisfaction depending on the needs of the customer. Thus, by employing a TQM approach in a company, customer needs and requirements would be expected to be designated as the first input as companies begin by identifying the needs and requirements of customers when coming up with new products. Through customer focus, TQM enables companies to be aware of the customer needs and the requirement that ought to be met, as contact with customers facilitates the realisation of needs and expectations to be fulfilled.

2.8.2. The positive effects of TQM on employee performance

There is a strong connection between a TQM company and employee performance as the success of TQM implementation depends mostly on employees' attitudes and activities in the company (Alsughayir, 2014). The effect of TQM processes will produce a positive impact on employee satisfaction, commitment, and organisational effectiveness. Therefore, a TQM company must focus not just on the quality of product, but also on the quality of its employees to maintain an effective management approach (Ibrahim et al., 2011). Employee satisfaction is one of the primary cornerstones of TQM and it is included as one of the quality goals, as satisfied employees are prerequisites for a desirable business result (Dedy et al., 2016). Moreover, Peris-Ortiz et al. (2015) state that the main thrust of TQM philosophy is to empower employees to control the quality of their work, to be more autonomous and to suggest improvement actions that contribute to enhancing employees' experience and job enrichments. According to Antony et al. (2002), effective TQM implementation leads to improved staff involvement because TQM ensures that all the employees within the company has a clear awareness and knowledge of what is required and how their activities relate to the company's business. Under TQM employees are motivated and encouraged to organise, manage, control and improve the processes within their authority and responsibility.

A key aspect of TQM in the workplace includes teamwork, which prospers when the different factions share the same vision of the organisation and which influence the roles they assume in the organisations. As quality is influenced by the environment which the employees operate in, TQM has to give attention to fostering the necessary work environment and endeavour to manage it with a view to achieving its conformity with the company's product requirements (Kaynak, 2013). According to Anvari et al. (2011), the leadership informed by TQM provides the tools for working effectively and the work environment fostering productive work. With the workers satisfied and having the feeling of being part of the organisation, employees are likely to work harder towards achieving organisational goals.

Another significant objective of TQM is to enhance employees' empowerment, which is appreciated by most leading companies. It is useful to note that employees have the means to consider the quality of their work processes, to recognise the measurements and to make a judgment on these measurements by comparing it to the goals and take necessary action when the process is not matching with the target. Moreover, empowered employees lead to knowing and identifying who their customers are; what their customers' expectations are, requirements, needs, wants; how to design and create new products to meet customers' needs; how to

improve and increase the necessary work processes; how to enhance and use the necessary quality measurements and how to continually improve all company's processes (Juran, 2001). Consequently, it can be stated that TQM is designed in a manner to achieve high employee performance as representing one of the essential results of effective implementation of best practices in companies.

2.8.3. The positive effects of TQM on eliminating waste and defects

Handfield et al. (1998) suggests that TQM has two positive impacts on a company's performance; firstly, improving internal performance, which leads to reduced waste and defects, enhanced effectiveness and maximising returns on assets and, secondly, improving customer satisfaction and loyalty which leads to increased sales, revenues and market share. Eliminating waste, errors and defects tend to be main approaches considered in controlling process variation and, applying TQM, focuses on streamlining processes to counter deviations from the standard specifications. In any company, various errors and defects are likely to arise due to personnel, technology methods, material and the environment (Oakland, 2014). In addition to quality tools and techniques being employed, TQM facilitates the improvement of quality by controlling the manufacturing processes to facilitate defects prevention (Gharakhani et al., 2013). According to Antony et al. (2002), through an effective TQM implementation, the work process and potential improvements are the focus of efforts. Employees concentrate more on the elimination of causes of errors, defects and problems than on correction procedures. Occurrences of errors and defects are remedied proactively. Identifying errors and defects take place at a lower level by the employees closest to the work who are empowered to deal with and manage these defects and errors. As a result, the quality of the outputs will be improved and the cost and rework will be reduced.

The continuous improvement associated with TQM involves ways of reducing waste as a means to add value. TQM gives focus to identifying waste that is not adding value to various stakeholders and taking appropriate measures and action to rectify the source of waste (Burrill & Ledolter, 1998). With attention being given to the activities that the company is able to perform excellently, Kaynak and Rogers (2013) posit that TQM tends to contribute to waste reduction. Thus, by focusing on quality, the adoption of TQM promotes the reduction of waste, errors and costs, as the ways the employees perform are altered to eliminate waste and defects through continuous improvement in pursuit of perfection. Furthermore, the job-related skills and knowledge become easier to define using TQM, which facilitates waste and errors tracking. In particular, by gaining insights into the cause of waste and defects, employees are

able to establish means of eliminating them. Therefore, applying TQM practices will contribute effectively towards eliminating waste, defects, errors and interruptions.

2.8.4. The positive effects of TQM on financial performance

Financial performance is an important measure of TQM outcomes; this is consonant with Kaynak's (2013) argument that implementing TQM systems tends to have a significant effect on financial performance. Companies that implement TQM practices are keen to ensure that effects are reflected in improved financial performance. There is also much evidence indicating that implementing TQM in companies is associated with improved financial performance which contributes to enhancing the value of the company (Moballeghi & Moghaddam, 2011). Likewise, Tena et al. (2001, p.937) states "the effects of TQM on the financial results are produced on the whole (74.5%) by the wealth of distinctive competencies that the introduction of TQM manages to generate or boost. The distinctive competencies associated with TQM are responsible for the fact that the introduction of this type of initiative can have a positive influence on performance". Furthermore, Kristian and Panjaitan (2014) pointed out that the higher quality facilitated by TQM enhanced customer satisfaction, improved customer loyalty which consequently paved the way for improved market share and financial performance.

TQM variables, when combined with productivity, are likely to have an effect on profitability. The focus that TQM gives to increasing satisfaction levels is reflected in increased profitability as costs are decreased through reduced returns and increased revenue due to customer loyalty (Gharakhani et al., 2013). The associated quality measurement, employee focus, training, supplier relations and benchmarking are all set to be part of applying TQM and they are bound to significantly impact on productivity and profitability (Ngambi & Nkemkiafu, 2015). However, it is not a guarantee that improvement in profitability would be achieved by adopting TQM practices. The relationship that TQM practices have with profitability is sometimes a co-variation link, rather than a causation link. Thus, a company which already has superior performance is more likely to adopt TQM approaches in an effort to legitimise or obtain recognition, improving the organisational environment or to have resources for investments in financing the quality programs (Chaudary et al., 2014). From the above discussion, it is evident that financial performance can be enhanced in companies by the TQM philosophy if it is efficiently managed.

2.8.5. The positive effects of TQM on the environment and society

Total quality management (TQM) has been widely used in contemporary companies as a means of improving the quality and value of processes, products, and services. This has been extended to cover environmental and societal benefits that emanate from having a management scope that is environmentally oriented in diverse ways. The scope of TQM has been deemed to have a positive effect on the environment in multiple ways (Pereira-Moliner et al., 2012). According to Osuagwu (2002), environmental factors have an essential influence on strategies of TQM. Thus, when companies are seeking to achieve optimal value for their products, the environmental aspects are among the main considerations. In the recent past, environmentalists have been lobbying society to boycott products that are regarded as environmentally unfriendly. With TQM focusing on enhancing products, processes, and services, the scope also puts into consideration the environmental factor. TQM not only ensures that products meet consumer expectations, but also seek to enhance environment compliance.

With TQM yielding high quality output in terms of products, services, and processes, it has the potential for enhancing efficiency, reducing costs, and having a positive impact on the overall profitability for respective companies. Increase in profitability is reflected in environmental and societal initiatives initiated by companies benefiting from TQM (Ho, 2010). For instance, it is inevitable for some companies to have processes that result in environmental degradation. Fracking, mining, and oil exploration companies are good examples of operations that yield important products, but with significant environmental consequences (Gunaydin & Oraz, 2015). TQM can aid such companies to increase efficiency, reduce costs, and consequently increase their profitability. The positive impact in this perspective is the availability of more resources to mitigate the environmental effects emanating from their production activities. More resources can also be availed of for research and development with the aim of coming up with production techniques that are more environmentally friendly. In the recent past, this has become apparent as energy companies, which are associated with high pollution levels, have embarked on investing in cleaner and renewable energy.

Investing in environmentally friendly processes and production techniques has been significantly affected by the cost footprint required to set up and maintain such systems. This makes them economically unviable; hence, most companies shy away from utilising them. However, there are regulatory bodies that are tasked with the responsibility of ensuring that

such companies meet a specified threshold of environmental compliance (Zink, 2012). In order to achieve the minimum compliance requirements, TQM can be effectively used to streamline the activities and processes in a manner that meets the required threshold. Meeting these requirements is critical as it compels companies to operate within acceptable environmental parameters, which are deemed beneficial to society. Continued TQM that is effectively practiced also helps companies further to enhance compliance with set regulations for an economically and environmentally sustainable future (Akpan et al., 2012). With TQM having a wide scope within companies, it also has a positive impact on issues such as Corporate Social Responsibility (CSR). Apart from helping companies to increase their profitability, which can lead to an increase in CSR dedicated resources, TQM also affects the CSR process itself (Benavides-Velasco et al., 2014). Such CSR process may involve environmental initiatives such as recycling, protection of natural ecosystems, planning and educating society. The SCR environmental programs can be designed to achieve optimal positive impacts on the environment and society in general. TQM can, therefore, be effectively utilised, either directly or indirectly, to have positive impacts on the environment and on society at large.

2.9. Total Quality Management Models

In last few decades, various TQM models and frameworks have been developed. These models provide a standardised approach for TQM implementation or perform self-evaluation of organisational quality management. Although, many models have been recognised which articulate the TQM implementation philosophy in real life, the most approved domains include four TQM models which are:

1. The Deming Prize
2. The Malcolm Baldrige National Quality Award (MBNQA) Model
3. The European Foundation for Quality Management (EFQM) Model
4. Oakland TQM Model

Since this research study aims to develop a framework to facilitate TQM implementation in Iraqi upstream oil sector, it is, therefore, important to shed light on these four most prominent and well-known TQM models worldwide.

2.9.1. Deming Prize Model

The Union of Japanese Scientists and Engineers (JUSE) was the founder of the Deming Prize 1951 with the purpose of honouring the contributions of Dr. W. Edwards Deming to Japanese industry and also to further promote the constant development of company-wide quality control in Japan. Private and public organisations' contributions to the effective implementation of quality control activities are commemorated by the Deming Prize. Deming Prize Model focuses on ten criteria that each applicant company must meet. As illustrated in Figure 2.2, the following categories form the ten criteria: policy management, organisational vision and strategy, effective utilisation of information, standardisation and scientific methods, human resources development and utilisation, quality assurance activates, maintenance/ control activates, improvement activities, effects and organisational power and future plans. These ten criteria are similar in some aspects or comparable with those of the other award models (Wood & Wood, 2005). However, unlike other TQM models, one of the main strengths of the Deming Prize criteria are their focus on top management leadership, process control, Kaizen improvement activities and on future planning to ensure that the gains made will be sustained. (Porter and Tanner, 2004).

Moreover, competition is not associated with the Deming Prize in contrast to the European Quality Award and the Baldrige Award (Porter & Tanner, 2004). This means the prize may be rewarded yearly to many companies meeting the above ten criteria.

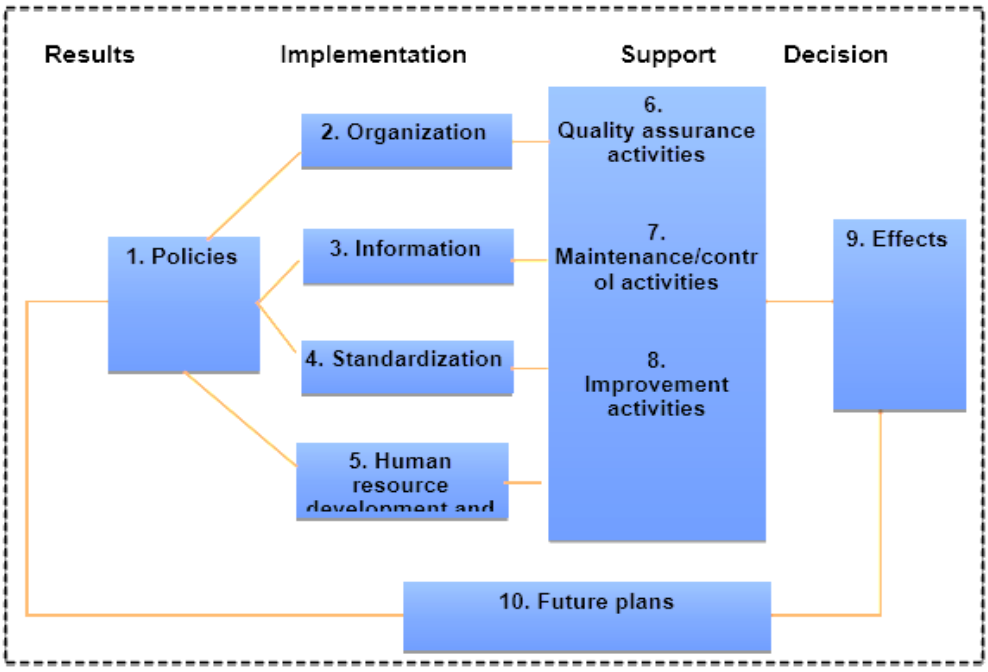


Figure 2.2 A Simplified Deming Prize Model, (Source: Porter & Tanner, 2004)

2.9.2. Malcolm Baldrige National Quality Award (MBNQA) Model

The government of the United States specifies the MBNQA Model to businesses manufacturing and service, large and small, and to health care and education organisations which use and are known to be exceptional in seven criteria as shown in the Figure 2.3, which are utilised to evaluate organisations (Evans & Lindsay, 2001).

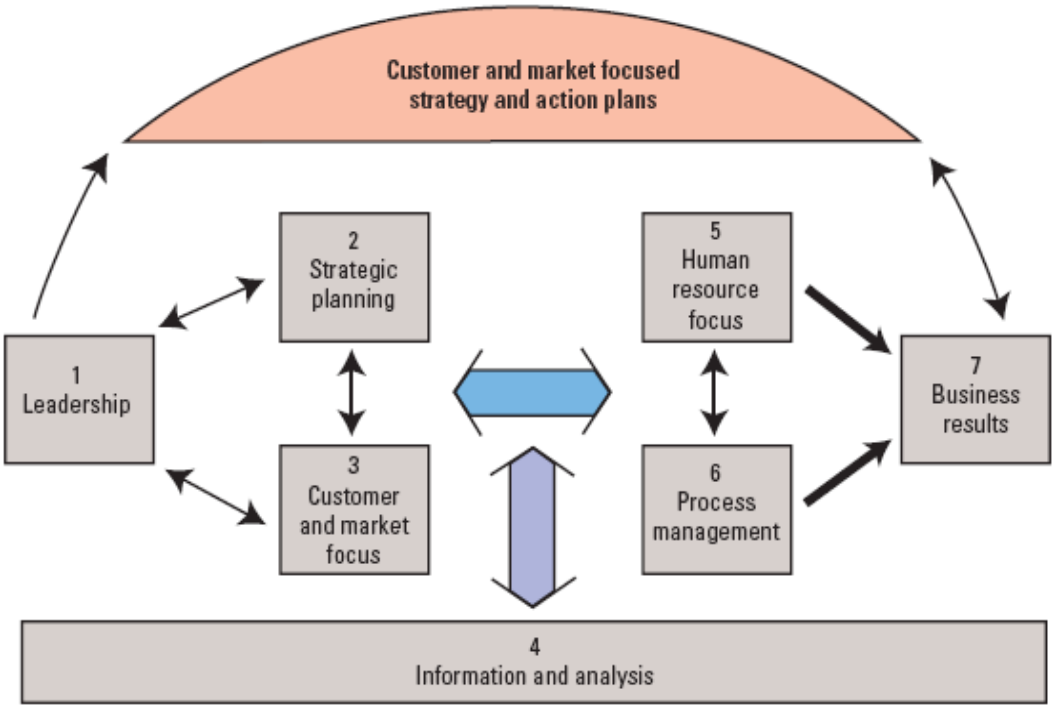


Figure 2.3 MBNQA Model, (Source: Oakland & Marosszeky, 2006)

The seven criteria, as shown in Figure 2.3 are:

1. Leadership; examines how the senior managers establish a sustaining quality values and address organisational responsibilities to guide all company's activities.
2. Strategic planning: examines how the company sets and creates strategic directions and how it defines and determines the major action plans required for achieving effective performance.
3. Customer and market focus; examines how the company builds and maintains strong relationships with customers.
4. Information and analysis; examines the effectiveness of data and information to support the main company's processes and performance.
5. Human resource focus; examines how the company enables and empowers its employees to develop it potential and how the employees is motivated to achieve the company's objectives.

6. Process management; examines how the company manage, design, improve and develop the major issues related to process management such as business processes, production delivery processes and support processes.
7. Business results; examines the company's key performance areas such as customer satisfaction, employee satisfaction, marketplace, employee, supplier, operational and financial performance.

Each criterion contains several components that focuses on the main requirements on which the business should concentrate (Evans & Lindsay, 2001).Therefore, for more details the seven criteria of MBNQM contains the following components: (i) Leadership; organisational leadership, public responsibility and citizenship; (ii) Strategic planning; strategy development, and strategy deployment; (iii) Customer and market focus; customer and market knowledge, customer relationships and satisfaction; (iv) Information and analysis; measurement and analysis of organisational performance, and information management; (v) human resource focus; work system, employee education, training and development, and employee well-being and satisfaction; (vi) Process management; product and service processes, business processes, and support processes; (vii) Business results; customer focused results, financial and market results, human resource results, and organisational effectiveness results.

The purpose of the model is to promote quality awareness and its influence on competitiveness, share information on effective quality strategies and the benefits resulting from implementing these strategies, and proposes a collection of criteria that can be utilised by business, industry, government and other enterprises in assessing their own quality improvement efforts (Porter & Tanner, 2004). According to Debalyo (1999), Malcolm Baldrige criteria have influenced many national and international quality awards making the USA not the only country experiencing MBNQA application's limitation. Therefore, MBNQA aims to stimulate companies to improve quality and productivity, to pave the way of those companies to establish criteria and guidelines that can be utilised by all companies to achieve the best performance in their business.

2.9.3. European Foundation for Quality Management (EFQM) Model

Fourteen multinationals which were grouped in the European Foundation for Quality Management in the early 1990s developed the (EFQM) business excellence model with the aim of improving management quality in Western Europe. A complete view concerning the organisation is provided by the EFQM and it can be employed to establish what makes these

distinct approaches fit and match up with each other. Any other tools can thus, be applied together with the model to develop maintainable excellence in terms of organisations' requirements and functions (EFQM, 2010). Nine criteria, as illustrated in Figure 2.4, are used to assess the organisations by this model.

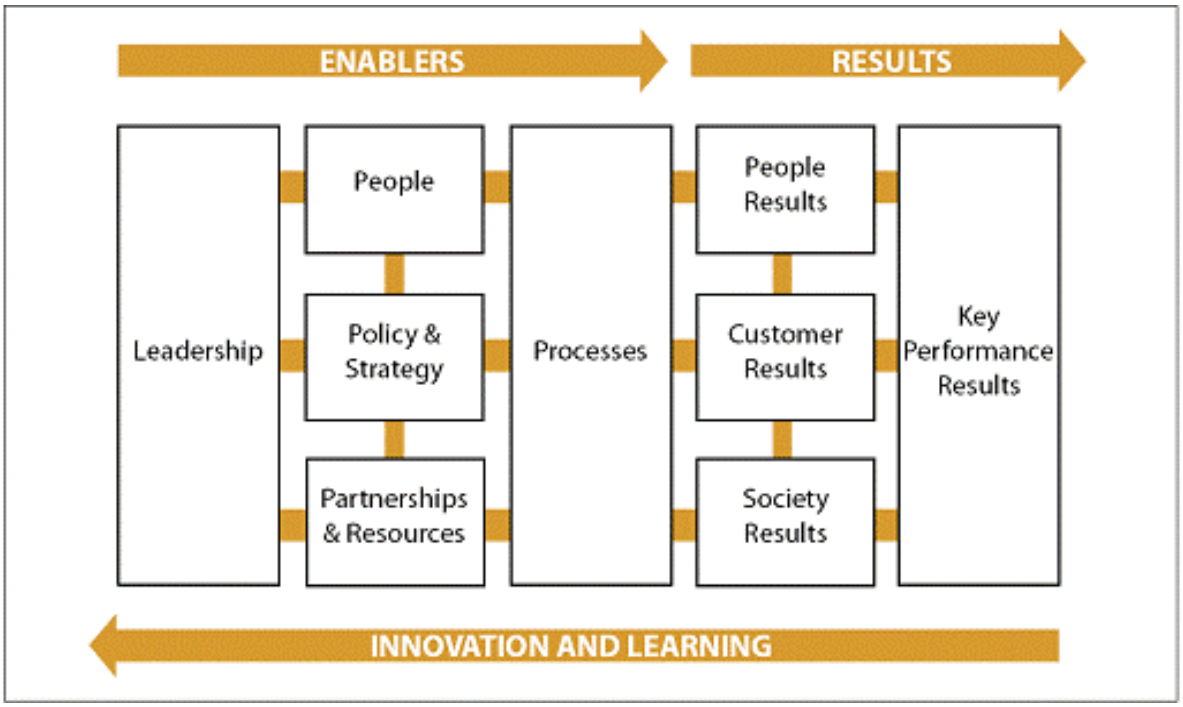


Figure 2.4 EFQM Excellence Model, (Source: Oakland & Marosszeky, 2006)

The five criteria on the left side of the model are called "enablers" namely leadership, policy and strategy, people (employee), partnership and resources and processes. The other four criteria on the right side of the model are called "results" which include customer satisfaction, people (employee) satisfaction, society results and key performance results.

The central notion underlying the model is that leadership, driving policy and strategy, people, partnerships and resources and processes, leads to the achievement of performance, customers, people and society.

The description of the basic elements of TQM concepts is attempted by the model as it is founded on the concept that the end products reveals organisational managerial policies, process and competence, as stated by Ghobadian and Woo (1996). Furthermore, the importance of increasing human resources, planning and capability are identified by it and also highlights the fact that the exclusive measure of performance is not financial results by emphasising that there is a major role of management in the quality improvement process. It

supposes that there is an instrumental relationship between outputs financial results and outcomes such as customer satisfaction and acceptance by society (Evans & Lindsay, 2001).

According to Conti (2007), companies are provided with an implementable TQM model, an effective benchmarking tool, self-assessment approaches, and a technique for sharing good practice and experience by this model. Conversely, there are some shortcomings and limitations with the model based on missing out some important elements in quality improvement, for instance, research and development, strategic positioning, innovation, and marketing. However, EFQM model is beneficial and plays a significant role in terms of assisting companies towards achieving quality improvement and competitiveness.

2.9.4. Oakland TQM Model

The main purpose of the Oakland Model is recognition of managing processes within the company. The model processes are seen as a chain of improving performance that are managed effectively and efficiently. The model was developed by Oakland and Marosszeky (2006) and is presented in Figure 2.5.

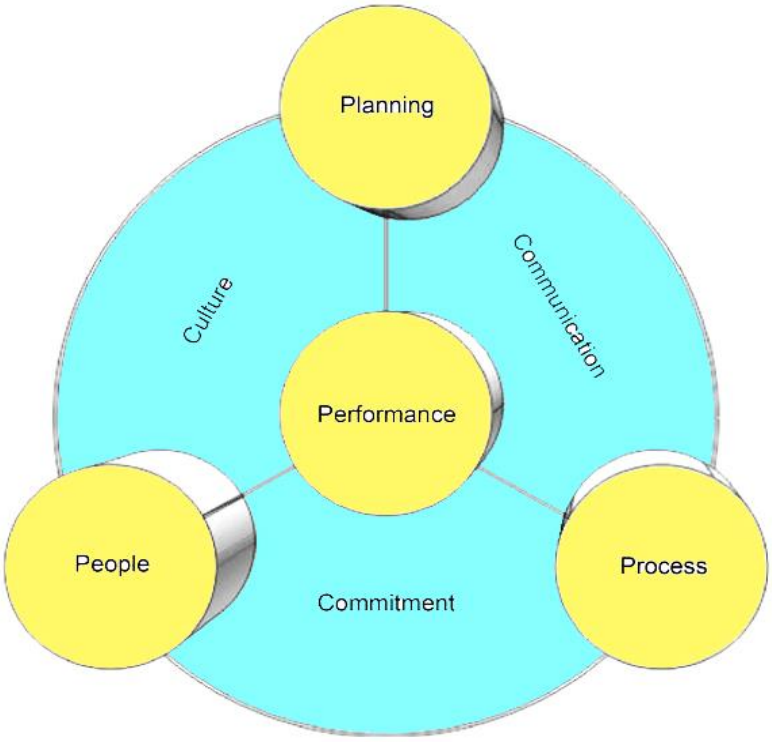


Figure 2.5 Oakland TQM Model, (Source: Oakland & Marosszeky, 2006)

The model addresses four hard factors of TQM; these are performance, people, planning and processes. It also includes three soft factors of TQM: commitment, communication and

culture. The central notion underlying the model is that performance improves and develops through managing and directing people, better planning and conducting appropriate processes. These four hard factors Ps are the essentials for delivering quality products to customers. Additionally, the three soft factors of TQM can never be underestimated as they are the foundation of the TQM framework. According to Oakland and Marosszeky (2006), successful companies which implement the TQM approach, are highly facilitated by culture. Even though communication is regarded as the key to success, business commitment from every stakeholder is a most significant factor. Oakland adds these are the soft factors must encase the hard factors of planning, people and processes in order to improve and enhance performance. According to Oakland (2014), the core of the model is the customer (both externally and internally). Management necessities (teams, tools and system) are represented in the surrounding triangle; the outer shell consists of communication, culture and commitment. The model acts as a framework, which leads the company towards TQM and provides the basis of excellence in the industry and covers all aspects of a company and its operations.

2.9.5. Common features of the TQM models

There are some shared criteria between MBNQA and Deming prize. These include top management leadership, strategies; human resource development and effective utilisation of information. The EFQM and MBNQA share the following criteria: leadership; strategic planning; customer and market focus; human resource focus; process management; and business results. The three models share the following criteria: leadership, strategies and human resources. The EFQM and MBNQA have added customer and market focus, customer satisfaction and employee satisfaction which are absent in the Deming prize. In the Oakland TQM model there is the insertion of the additional soft elements namely, communication, commitment and culture. The recent models have concentrated on customer satisfaction and employee satisfaction. They also insert the elements of culture and communication as factors that are essential in a TQM models.

These TQM models and frameworks emerged from developed countries, but are useful for organisations as self-assessment tools which can be used by them to gain a competitive foothold within the global economy. They represent a significant departure from earlier methods which were more narrowly focused on attempts to improve products and services by post factum quality control methods. Instead, the focus is on the role of management in giving the lead for efficient implementation of TQM.

The choice of adopting or developing a TQM model or framework is a critical issue because it depends on the vision of the company towards implementing TQM. There are many models and each model has its distinguishing characteristics, which can be of assistance to any company, but there is no model that can fit all companies or be the solution for all organisational requirements. Each company has its unique circumstances, resources, culture, hierarchal structure and other factors that influence the company's effectiveness to implement TQM. Sower et al. (2016) have argued cogently against attempts to make one model fit all situations and that it was preferable to consider a range of adaptations to fit particular contexts. This was supported in a college context by Manning et al. (2013) who drew on principles of TQM to advocate greater participation of students in collaborative management for better outcomes. In addition, Evans and Dean (2003) found that the more successfully implemented models were often those which developed sensitive approaches to the culture of the organisations. Moreover, the degree of maturity and perception towards TQM in certain companies, especially in developed countries, is not at the same level as in other companies that exist in developing countries such as Iraq. Thus, it is argued that developing a framework

that fits the current context of oil companies in Iraq is required, especially one which takes into account the cultural context and where quality is strongly defined in terms of improving the performance and meeting customer expectations.

The next two sections are devoted to highlight the main issues related to the conceptual framework of this study. The first of these sections aims at explaining the concept and the importance behind the development of the conceptual framework, while the second section presents the original conceptual framework for this research in addition to the key issues that constitute it.

2.10. The Initial Conceptual Framework for TQM

This section will discuss the concept of framework through two sub-sections. The first sub section highlight the importance of the significance of framework in general while the second sub-section will elaborate specifically on initial conceptual framework of TQM in relation to this study.

2.10.1. The importance of conceptual framework

The framework illustrates the key concepts associated with this research, their inter-relationships and the context within which the concepts and interrelationships are applicable (Yin, 2014). *A conceptual framework is described as "a network or a "plane" of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena"* (Jabareen, 2009). Another contribution to the meaning of a "framework" was made by Yusof and Aspinwall (2000). They considered a framework as a schema based on certain assumptions and principles for the purpose of guiding thoughts and actions. Voss et al. (2002) viewed a conceptual framework as a graphical representation of key issues and how they are interrelated. Simply stated, a conceptual framework displays in a coherent fashion how the variables central to the research are linked to one another. These variables have emerged from a comprehensive literature review and the framework design shows how research questions are addressed, the underlying methodology, data collection methods and analysis are interlinked in order to provide a valid and reliable source of scholarly research. Thayaparan (2012) views a framework as a research tool designed to guide the researcher and reader alike to understand the nature of the matter under investigation and how that investigation is intended to proceed. Imenda (2014) in the context of a quantitative study understands the conceptual framework in terms of the theory driving the research and which is to be tested and/or refined by the research. However, Nilsen (2015) distinguishes between a

model and a theory by asserting that while a model is descriptive in nature, a theory is both descriptive and explanatory.

In a more abstract way, it can be understood as a theoretical construct that represents something using the set of variable quantities and the logical and quantitative relationships among them. In scientific research, these are crucial concepts and allow for investigation and reasoning regarding the phenomena described by the model. Nevertheless, a model may idealise the situation within the given framework by making assumptions to simplify or removing the error included by natural variations within the system. However, using the model is argued by literature to be inadequate with agencies that have not utilised a similar method before. This implies that adoption of a model for the first time is likely to result in problems (Stambler & Barbera, 2014). Furthermore, Rocco and Plakhotnik (2009) pointed out that a conceptual framework may guide the researcher to be selective and to omit important aspects that should be included in the study. Therefore, it is preferable to use a conceptual framework as a guide for addressing concepts that help to identify main areas during the study by creating a map which guides the researcher to focus on the subject area. In the following section, the conceptual framework of this research is presented in detail.

2.10.2. The initial conceptual framework of TQM implementation of this research

The initial conceptual framework of TQM implementation was developed based on the key issues and concepts identified through the literature review and based on the researcher's knowledge and understanding of the phenomena. The conceptual framework in this research serves two basic purposes. The first is that it acts as a framework of understanding TQM and, therefore, the framework will be refined throughout the research process; based on the knowledge obtaining from the senior, middle and junior managers in the company. The second purpose is that the final framework will act as a baseline to facilitate TQM implementation in the oil company.

Three major categories are included in the conceptual framework which were derived from the literature review. The key factors required to facilitate the TQM implementation (objective 3), the barriers that hinder the TQM implementation (objective 4) and the potential benefits of applying TQM within the oil company (objective 5). This framework illustrates the overall understanding and purpose of the research. Figure 2.6 illustrate the initial conceptual framework.

The literature review in general and the different TQM models, reviewed, in particular principally highlighted the key factors, which were required to develop an initial conceptual framework. For instance, the initial conceptual framework shares the following factors in identifying the TQM model: leadership or top management commitment; strategic planning or policy and strategy; customer focus, continuous improvement and process management; with the EFQM, MBNOA and Deming prize. It also shares a consideration of the soft elements such as communication and quality culture with the Oakland TQM model. Also as discussed in section 2.7, the adoption and implementation of TQM in the companies is not unproblematic. Therefore, the framework suggests that barriers could become apparent during adoption or implementation of TQM. Furthermore, the framework suggests that TQM implementation can bring benefits that reflect on improving the performance of the entire company. From Figure 2.6, it can be seen that, although the initial conceptual framework does not identify any specific barriers or benefits, these issues will be elaborated based on the empirical evidence.

Accordingly, the final framework envisions the key factors required for TQM implementation and the barriers that hinder the implementation process. In addition, the potential benefits to be obtained by its effective implementation are included. Having achieved that, the framework would provide a structured approach to facilitate the TQM implementation in Iraqi upstream oil sector.

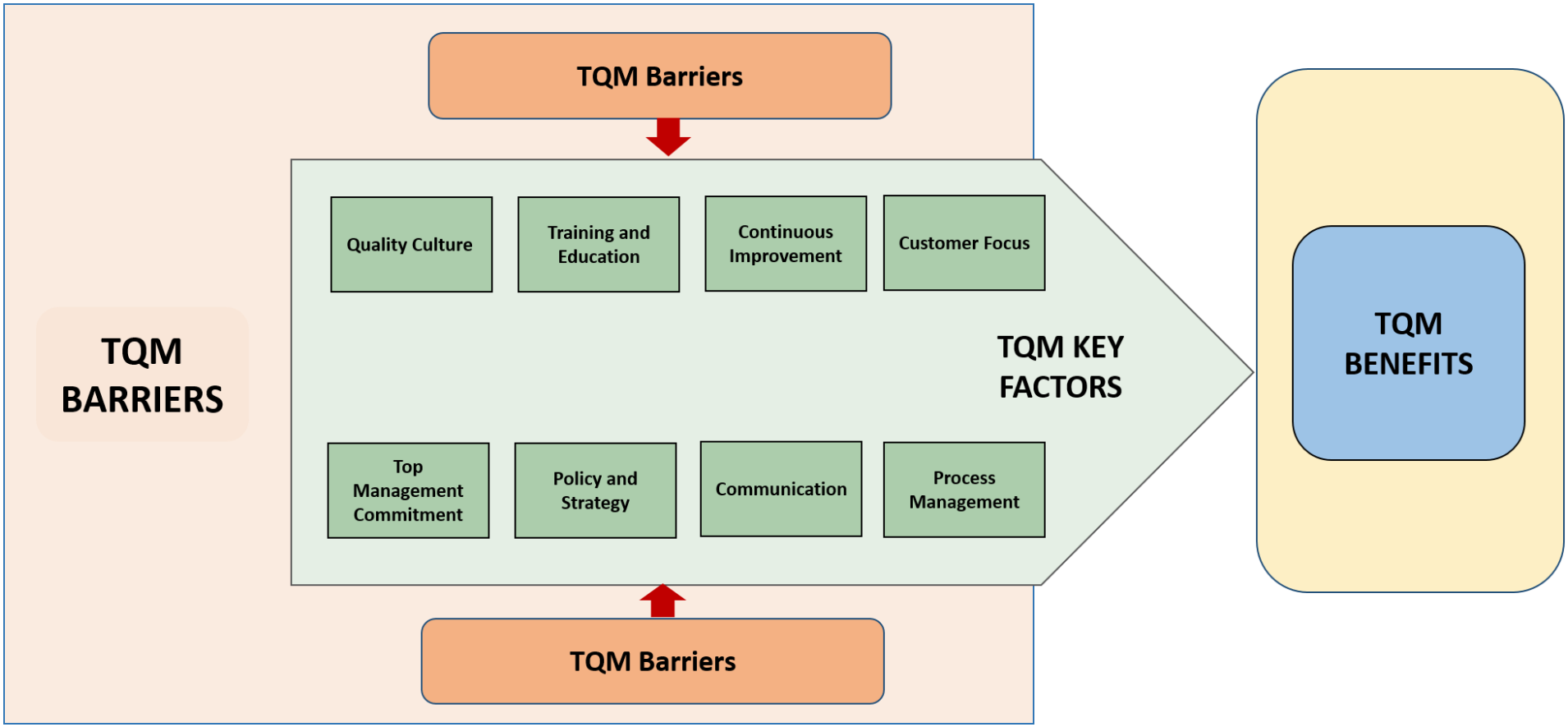


Figure 2.6 The initial Conceptual Framework of TQM implementation of this research

2.11. Chapter Summary

This chapter has provided an overview of the main issues related to TQM. It commenced with the definition of quality followed by discussing the evolution of TQM. It has also explored and evaluated different definitions of TQM that were developed by various authors. Consequently, a new definition of TQM has been proposed by the researcher. Drawing on the available literature, the researcher has identified the following key factors of TQM implementation: top management commitment, quality culture, policy and strategy, training and development, communication, process management, customer focus and continuous improvement. Moreover, this chapter has presented a clear picture regarding the barriers to TQM in general and pays more attention to those in developing countries in particular followed by highlighting and discussing the significant benefits of TQM implementation. Furthermore, attention was paid to the most common TQM models which are widely used by many companies worldwide: Deming Prize Model, Malcolm Baldrige National Quality Award (MBNQA) Model, European Foundation for Quality Management (EFQM) Model and Oakland TQM Model. Finally, the initial conceptual framework of this study which is basically derived from the TQM models and principles discussed in the literature review and which has been illustrated and explained in some detail.

CHAPTER THREE

IRAQI OIL INDUSTRY: IMPORTANT ASPECTS AND OPPORTUNITIES

Chapter 3: Iraqi Oil Industry: Important Aspects and Opportunities

3.1. Introduction

The aim of this chapter is to present a clear picture of the main issues and opportunities that relate to the Iraqi oil industry. An overview of the oil industry in Iraq is presented. This is followed by a consideration of the impact of the industry on the economy of Iraq. Additionally, the contributions of the international oil companies operating in Iraq are assessed as well as the role of TQM in the oil industry.

3.2. An overview of the oil industry in Iraq

Iraq is second only to Saudi Arabia in the Organisation of Petroleum Exporting Countries (OPEC) in terms of global crude oil production. Its verified oil reserves is estimated to be 143 billion barrels, but with a further 215 billion barrels projected for future development. This represents 18% of total known reserves in the Middle East and 9% of total reserves globally (EIA, 2016; JPT, 2017). Thus, Iraq is a major global oil producer, but it is likely that much of its reserves have yet to be discovered and exploited. For example, geologists have estimated that between 45 and 100 billion barrels may lie in Western and Southern desert regions – an area that remains relatively unexplored. However, the country's verified oil reserves places it in fifth place behind Venezuela, Saudi Arabia, Canada and Iran (Table 3.1).

Table 3.1 Top 10 Countries Proven Oil Reserves and Production (EIA, 2016; JPT, 2017)

Rank	Country	OPEC Country	Oil Reserves (Billion Barrels)	Oil Production (Thousand Barrels per day)	
				2014	2017
1	Venezuela	Yes	297.6	2,489.2	2,180
2	Saudi Arabia	Yes	267.91	11,545.7	10,640
3	Canada	No	173,105	3,854.4	3,721
4	Iran	Yes	154.58	3,538.4	4,200
5	Iraq	Yes	143.35	2.986.6	4,645
6	Kuwait	Yes	104	2,796.8	2,970
7	United Arab Emirates	Yes	97.8	3,213.2	3,226
8	Russia	No	80	10,397	10,832
9	Libya	Yes	48.01	1,483	580
10	Nigeria	Yes	37.2	2,524.1	2,023

Iraqi oil fields are all located onshore with the largest fields lying in the South where the geological features of that region means that extraction is relatively straightforward and inexpensive. Many of the major oil fields are located in sparsely populated regions where the terrain is relatively level and close to seaports (IEA, 2012). Most of Iraq's known hydrocarbon resources is located along a strip that lies to its Eastern border. 9 of the oil fields are known as super giants which hold over 5 billion barrels, while a further 22 are known as giants with over 1 billion barrels. Most of these fields are located close to Basra in the South as shown in Figure 3.1.

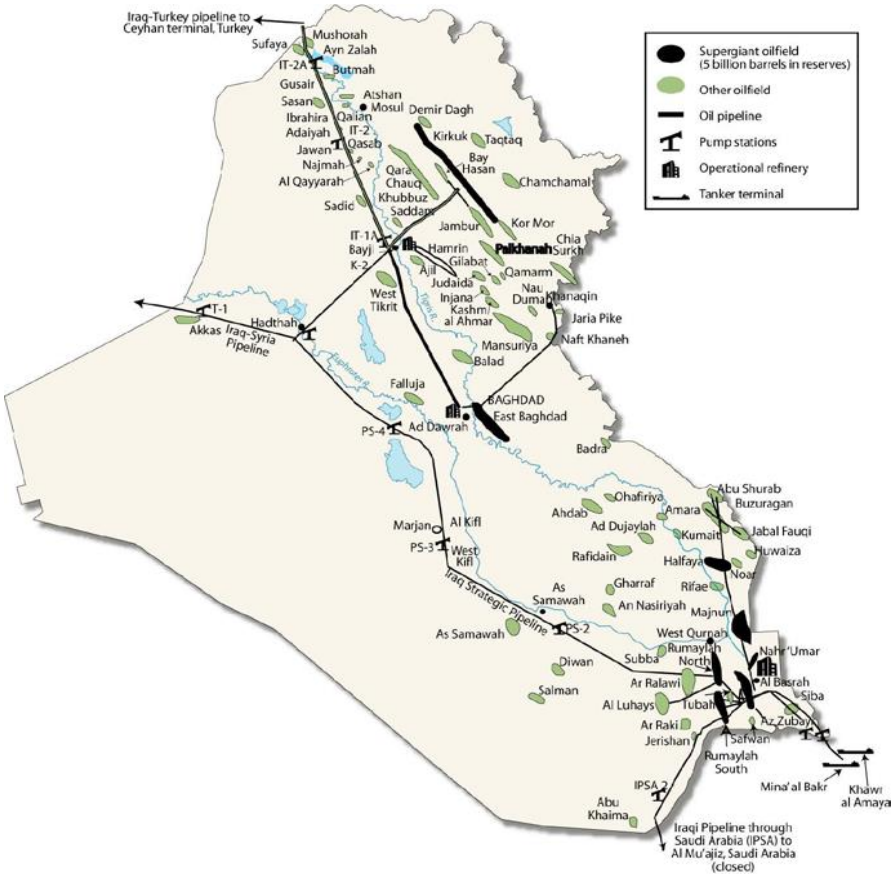


Figure 3.1 Iraq's Oil resources and infrastructure (Amon, 2011)

In addition to oil, Iraq also has significant reserves of natural gas most of which is currently underutilised (JPT, 2017). Natural gas reserves are estimated to be 3,435 billion standard cubic meters (scm). This is equivalent to 15 billion barrels of oil. However, it is also estimated that a further 7.9 billion scm of gas remains to be recovered. 75% of Iraq's natural gas reserves are in close proximity to its oil wells which are mainly located in the supergiant fields in the south (IEA, 2012). In fact, more than half of Iraq's total natural gas production is currently flared, but efforts are being made to minimise this flaring and to use it to generate electrical energy or else to inject it into the oil wells to facilitate oil extraction. Iraq's South

Gas Company, which is 51% state owned has entered into contracts with Royal Dutch Shell and Mitsubishi, which represent 44% and 5%, respectively of a new joint venture known as the Basra Gas Company which has invested in the recovery of flared gas in order to convert it into useful products (EIA, 2016). Noteworthy, about 75% of Iraq's natural gas reserves are associated with oil production, most of which lie in the supergiant fields in the south of Iraq near Basra (IEA, 2012).

The Iraqi oil and gas industry divided into two main sectors downstream and upstream. The downstream oil sector is responsible for processing and refining of crude oil, and purifying of raw and natural gas in addition to transportation, distribution and marketing. The Iraqi downstream oil sector consists two main categories, the first one associated with refining and includes the following companies; North Refineries Company (NRC), Midland Refineries Company (MRC), South Refineries Company (SRC). The second category associated with transportation, distribution and marketing. This categories includes the following companies: Oil Pipelines Company (OPC), Iraqi Oil Tankers Company (IOTC), Oil Products Distribution Company (OPDC) and State Organisation for Marketing of Oil (SOMO).

The State Oil Marketing Organisation (SOMO) was founded by the government in the downstream sector of Iraq as the only company which can legitimately export oil. Not only does SOMO give the government control of oil exports but it also provides a transparent means of accountability. Likewise, the government has control over international companies and investors in oil production through the Ministry of Oil, which directs the Petroleum Contracting and Licensing Directorate (PCLD) (IEITI, 2015). The activities of the PCLD will be described in the following sub-section.

The Iraqi upstream oil sector in charge with production, exploration and drilling. Therefore, in this sector there are three categories of companies that were set by the Ministry of Oil to boost oil exploration and production in the country. The first category related to oil production, in fact, the ministry of oil oversees oil and natural gas production through its operating entities: the North Oil Company (NOC) and the Midland Oil Company (MDOC) in the north and central regions, and the Basra Oil Company (BOC) and the Maysan Oil Company (MOC) in southern regions. In addition to the North Gas company (NGC) in the north region and the South Gas Company (SGC) in the south region (IMOO 2017; EIA, 2016). With respect to the second and the third categories which are exploration and drilling they include two major companies Oil Exploration Company (OEC) and Iraqi Drilling Company (IDC) respectively.

The main task of the OEC is to discover and evaluate, new hydrocarbon structures, by using expert staff who use the latest technologies in the fields of geology, seismic acquisition interpretation, processing and laboratory researches and analyses, supported by engineers, legal, administrative and finance staff. The OEC has already completed 1862 geological and seismic studies for the country (IEITI, 2015).

With respect to the oil drilling, IDC was created by the government in 1990. The main goal of establishing IDC was to incorporate all activities related to the management and implementation of drilling, reclamation and the development of oil wells in several oil fields. IDC has a work force of about 9000. The company has played a very significant role in boosting oil and gas drilling operations in Iraq. Its operations cover the entire Iraqi territory. IDC has three main offices based in southern, central and northern Iraq. It has been able to sign many contracts with both national and international oil companies in the field of drilling and the reclamation of oil wells, despite the existence of competition with other international companies operating in Iraq. From 1990 to 2003, IDC drilled 230 wells and worked-over 600 wells and after 2003, the company has drilled 423 wells and worked-over 1077 wells (IEITI, 2015).

In 2012, the company achieved an impressive objective by acquiring an ISO9001: 2008, the first Iraqi company in the oil sector to achieve this certificate. Moreover, in early 2016, the company implemented and developed integrated management systems, which are known as (QHSE) and which meet the requirements of the Quality ISO9001: 2008, Health and Safety 18001:1999, and Environment 14001:2004 standards, which are aimed at satisfying the needs and requirements of its customers. Such quality awards have also been accompanied by its successful drilling activities which have contributed to increasing the oil production from 2.4 million barrels per day in 2009, to 4.55 million barrels in 2016 and is projected to reach 5.0 million barrels per day by the end of 2017 (JPT, 2017). Most of these activities were carried out for national and international companies working in Iraq.

The IDC has also implemented a Sustainable Development and Environment (SDE) strategy in all its operations in consultation with its stakeholders. This will help to minimise and mitigate damage to population, wildlife and the environment in its area of operations. The IDC has always consulted with stakeholders in its area of operations whether they are local to international communities. The company has also embarked on specific training programmes for its employees to enable them acquire the latest technology in drilling, work-over and other projects in line with international accepted quality standards. Most of the trainees have

acquired the International Well Control Forum (IWCF) certificates. Additionally, the company conducts benchmarking with other companies, which have more advanced QHSE, in order to assess and improve its system. IDC does not classify itself as a TQM company, but its philosophy is derived from the adoption and implementation of the ISO9001: 2008, which researchers such as Skrabec (1999), Sun (2000) and Escanciano et al. (2001) consider as the first step towards achieving TQM.

Government control through these agencies ensures the sustainability of the oil and gas sector as well as protecting the environment. Sustainability is essentially in the national interests to ensure that the country benefits from its natural resources. Nevertheless, most international oil producers retain much control of their operations, especially in the upstream section. Thus, there is a need for the government to gain more control over these international companies in the interests of sustainability and the protection of the environment.

3.3.The impact of oil industry on the Iraqi economy

The growing global energy demand has led to an increase in the demand for oil and gas. This increase in demand leads to corresponding increases in oil price. According to Toraman et al. (2011), oil price is one of the economic factors that are directing the world economy today. Economically, higher levels of oil prices is related to a higher economic growth for exporting countries because more revenues are generated.

The oil sector is the main contributor to Iraq's economy, which represents in excess of 70% of total GDP and over 95% of government revenue. The dominant position of oil as a source of foreign earnings is shown in Table 3.2.

Table 3.2 Projected Iraqi Revenue 2016 – 2021(in trillions of ID) (IMF 2016).

	2016	2017	2018	2019	2020	2021
Total Revenue	66	79	86	88	92	96
Crude Oil Export Revenue	58	69	75	77	80	82
Non-Oil Revenue	8	10	11	11	12	14
% of Crude Oil Revenue	88	87	87	87	87	85

Thus, oil prices and exports have a direct effect on Iraq's economic growth (Mhamad & Saeed, 2016). For example, the fall in the price of oil in 2016 from the government budgeted price of $56 per barrel to $35.5 resulted in a loss of 70% of its overseas revenues and this has

had a negative impact due to cuts in public spending. However, it is projected that oil prices will rise over the next five years and perhaps beyond. In fact, Iraq is projected to earn some US$ 5 billion annually by 2035 according to the International Energy Agency. However, such earnings are contingent on investment in oil and gas infrastructure, which if successful, could mean that Iraq could become the second largest exporter of oil representing as much as 45% of total global production as shown in Table 3.3.

Table 3.3 Projected Iraqi Oil Production and Export 2016 – 2021 (IMF 2016).

	2016	2017	2018	2019	2020	2021
Production (mbpd)	4.5	4.5	4.5	4.5	4.5	4.5
Export (mbpd)	3.8	3.8	3.8	3.8	3.8	3.8
Oil Export Price (US$pb)	35.5	42.0	45.7	47.0	48.8	50.2
% of Crude Oil Export	84	84	84	84	84	84

It is of significance, however, that despite the dominance of the oil industry in the Iraqi economy, it only employs 1% of the total labour market (Sassoon, 2016). To address this imbalance, the government aims to use oil revenues to fund infrastructure and other sectors in the economy. Such a strategy could make Iraq an attractive environment for foreign investment. Thus, only 13% of oil revenues finds its way back into the industry in terms of investment, while the remaining 87% is directed into non-oil sectors, described by IEITI (2015) as a move in the right direction. This will assist in economic growth in other sectors to lessen dependency on oil revenues. Economic diversification will include the development of energy supply, housing, roads, food processing, financial services, transport and tourism. Moreover, if the proposed development of the natural gas sector actually takes place, it is projected by the World Bank, that such development would boost the Iraqi economy by US$ 1.2 billion, which would more than compensate for any losses due to falling oil prices.

3.4.The international oil companies working in Iraq

Despite the need for diversification, the Iraqi government remains committed to maximising returns from oil and gas due to their dominant positions as drivers of the national economy. Thus, top priority is assigned to developing a policy for the oil and gas sectors which includes the adoption of a legal framework for the sustainability of these sectors by improving infrastructure such as transport, storage and export facilities.

To achieve these objectives, the government, through its Ministry of Oil, has endeavoured to include International Oil Companies (IOCs) in the development of Iraq's oil fields. This is because the government views the development of oil and gas sectors as key to generating revenues to fund other non-oil sectors. The Ministry of Oil held a highly publicised and innovative series of four rounds of bidding in order to award contracts to successful IOC bidders (Devine et al., 2014). The geographical regions involved in this bidding process are illustrated in Figure 3.3.

- Producing fields in need of rehabilitation (round 1).
- Discovered, but undeveloped fields (round 2).
- Gas prone fields (round 3).
- Exploration blocks (round 4).

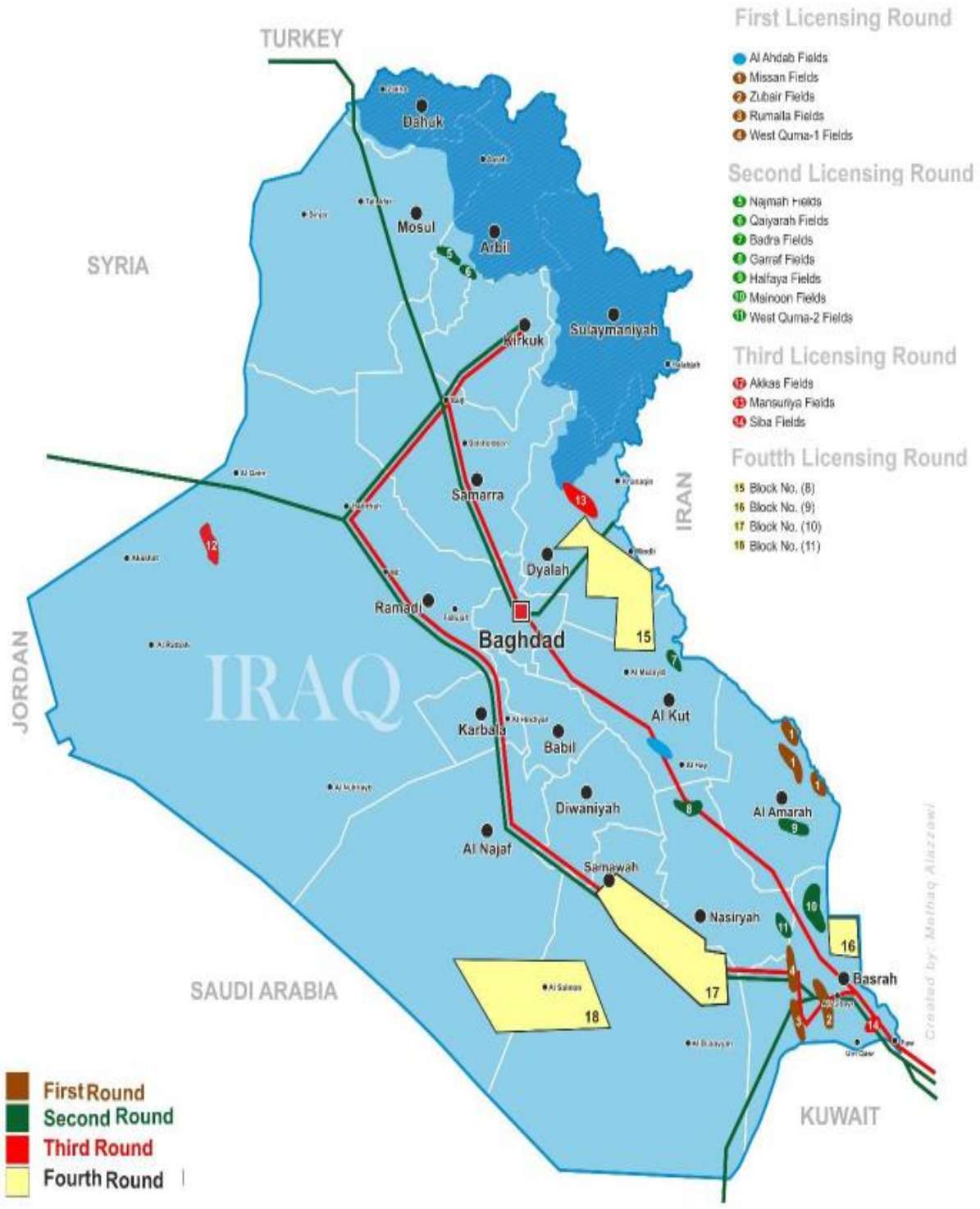


Figure 3.2 The geographical coverage of the licensing rounds (IEITI, 2015)

The first of the bidding rounds took place in June 2009 and resulted in four contracts for the supergiant Rumaila field in the Basra region (see Table 3.4)

Table 3.4 IOCs of First licensing round (PCLD, 2015)

Oil field	Company	Share in field (%)	Iraqi Partner (%)	Date of signing contract	Initial production (mbpd)	Production target (mbpd)	Service fee per bbl ($)	Minimum average of expenditure (m$)
Rumaila	BP	38	SOMO	17 DEC 2009	1.066	2.850	1.95	300
	Petro china	37						
Zubair	Eni	32.81	MOC	18 FFB 2010	0.182	1.2	2	200
	Occidental	23.44						
	Kogas	18.75						
West Qurna (Phase 1)	Exxonmobil	60	OEC	1 March 2010	0.244	2.3	1.90	250
	Shell	15						
Missan Fields	Cnooci	63.75	IDC	20 DEC 2010	0.097	0.450	2.3	—
	Tpao	11.25						

The second round commenced in December 2009 and resulted in 7 contracts, one for each of the 7 supergiant fields as illustrated in Table 3.5.

Table 3.5 IOCs of Second licensing round (PCLD, 2015)

Oil field	Company	Share in field (%)	Iraqi Partner (%)	Date of signing contract	Initial production (mbpd)	Production target (mbpd)	Service fee per bbl ($)	Minimum average of expenditure (m$)
West Qurna (phase 2)	Luk oil	75	NOC	10.2.2010	0.120	1.800	1.15	250
Majnoon	Shell	45	MOC	01.3.2010	0.175	1.800	1.39	300
	Petronas	30						
Halfaya	Petro China	37.5	SOC	01. 3.2010	0.070	0.530	1.40	150
	Petronas	18.75						
	Total	18.75						
Garraf	Petronas	45	NOC	10.2.2010	0.035	0.230	1.49	150
	Japex	30						
Badra	Gazprom	30		18.2.2010				

	Kogas	22.5	OEC		0.015	0.170	5.5	100
	Petronas	15						
	Tpao	7.5						
Qaiyarah	Sonangol	75	SOC	18.2.2010	0.030	0.120	5	150
Najmah	Sonangol	75	IDC	18.2.2010	0.020	0.110	6	100

The first and second round contracts were technical in nature and were similar in that they focused on developing existing production for the extraction of oil.

The reports from PCLD showed that by the end of 2015 the total national oil production had risen from 142,930,425 barrels to 1,278,991,546 barrels. The rise of 1,136,061,121 barrels was the result of additional production from the first and second licensing rounds (IEITI, 2015). This indicates that implementing licensing rounds service contracts through the involvement of IOCs in the Iraqi oil and gas industry has certainly yielded positive results by improving production and enhancing recovery of petroleum.

The third licensing bidding rounds commenced in October 2010 and involved the awarding of natural gas contracts. This resulted in three concessions as shown in Table 3.6.

Table 3.6 IOCs of Third licensing round (PCLD, 2015)

Oil field	Company	Share in field (%)	Iraqi Partner (%)	Date of signing contract	Production target (mcmb)	Service fee per bbl ($)	Gross revenue (M$)
Akkas	Kogas	75	NOC	15.11.2011	410	5.5	5.5
Mansuriyah	Tpao	37.5	OEC	18.07.2011	310	7	7
	Kuwait energy co.	22.5					
	Kogas	15					
Siba	Kuwait energy co.	45	MOC	01.07.2011	100	7.5	7.5
	Tpao	30					

Prior to this third round of bidding, much of Iraqi natural gas was flared and therefore lost because of the lack of the infrastructure required to exploit this resource. These third round contracts included conditions to minimise such wastage. By 2015, the production of natural gas had risen from 14,606,584 m^3 to 23,458,086 m^3. Thus, the third round of bidding was

beginning to show its positive impact by exploiting natural gas. The additional revenues were used to develop energy production and transport as well as enhancing the non-oil sectors.

The fourth and final round commenced in April, 2012 and was aimed at further development of oil and gas fields by new exploration projects which would halt the decline in output. This was called the exploration development and production service contracts (IEITI, 2015). The fourth license round is argued to be a very unusual contractual model for exploration. It has fixed contracts fee meaning that low oil prices have a particularly damaging effect on the government's income. Some analysts are therefore proposing Production Sharing Contract (PSC) for the country since this type of contract shares equal gain and liability to the contractor (international oil company) and Iraq. However, according to report (IEITI, 2015), the licensing contracts whether TSC or PDC represent a new model in the oilfield development agreements between the Iraqi governments and the international oil companies, as these contracts provide benefits in all aspects for the national economy and the oil industry in Iraq.

The researcher is of the opinion that Iraq should adapt the type of contract that is beneficial to its oil industry and its economy. Since the Iraqi government's target is to boost oil and gas development and production in the region and with the hope that the price of oil will improve in the nearby future the author believes that the aims of these contracts have been achieved.
Although TSC and PDC are used in Iraq, they are considered as unusual in present day negotiations due to the fact that these contracts have fixed fees, which will affect the country's economy, particularly in long term if the oil price changes. According to EITI (2017), the best alternative of the TSC and PDC is PSC since it equally shares the gains and liabilities for both parties. The fourth round of licensing is presented in Table 3.7.

Table 3.7 IOCs of Fourth licensing round (PCLD, 2015)

Operation	Company	Share in field (%)	Hydrocarbon	Date of signing contract	Service fee Per bbl ($)	Distance 1000 km2	Location
Block 8	Pakistan Petroleum	100	Oil/Gas	2012	5.38	6	East central Iraq, 110 km east of Baghdad
Block 9	Kuwait Energy	40	Oil	2012	6.24	9	Southern Iraq, 20 km north of Basra
	Dragon oil	30					
	Tpao	30					

Block 10	Luk oil	60	Oil	2012	5.99	5.5	Southern Iraq, southwest of Nassiriya
	Inpex corporation Premier oil	40					
Block 12	Bashneft	30	Oil	2012	9.85	8	Between Najaf and Muthanna
	Pakistan Petroleum	70					

3.5. The significant role of TQM in the oil industry

The concept of TQM has had an impact on the performance of almost every sector throughout the world. The important influence of TQM to developing the performance of an organisation in various aspects has been identified by numerous authors (Demirbag et al., 2006; Kumar, 2006; Arumugam et al., 2008). These aspects include, but are not limited to, waste elimination, financial advance, decrease process of errors and advancing the general quality of the products or services. Iraq is one of the developing countries in the Middle East and the survival of the oil industry is very crucial for a better economic landscape in the coming years. In response to the challenges that Iraqi oil companies are facing, especially in terms of inefficient performance (see Section 1.3), since the management approach and philosophy are highly influenced by the company's performance. TQM is a management approach and a technique of thinking that might be adopted because it is proven to have helped many companies in developed and developing countries towards improving their entire performance and achieving world-class status (Hansson, 2003; Zairi, 2002; Rahman, 2004).

TQM has been described by Al-Khalifa and Aspinwall (2000) as quality approach which is specifically important for the oil industries of the developing countries of the Middle East, in particular, as most of these countries depend heavily on oil revenues as the main source of their income and the cornerstone for their economies. Rawlins (2008) considers TQM as a major tool of reconstructing and making necessary changes in oil and gas industry. The quality standards of ISO-9000 and ISO-9001 are considered to be an entry into the international market to ensure the customers that quality is well enough developed to acceptable standards of the product or service. TQM is a more refined approach that can enhance the performance of oil and gas companies by utilising the tools that effectively improve the overall improvement of the quality of the products or the services in an appropriate and methodological way.

The practice of TQM in oil companies tends to enhance their organisational performance Alsaidi (2014). In this regard, Lee and Lee (2007) stated that many companies across the globe, including oil and gas companies, employed TQM as a whole philosophy as its effectiveness has been observed to improve organisational performance, reduce waste, whilst realising greater profits. Therefore, due to the severe competition across national boundaries, high demand and the globalisation of oil markets, there is a great need for managers at all levels in oil companies to be aware of the significant role and practices of TQM.

Additionally, Abusa and Gibson (2013) argued that oil and gas industries were the major economic drivers of the Middle Eastern countries and most of the multi-national oil companies operating in the region had already boosted their operational performance by effectively utilising the concept of TQM. However, according to Alsaidi (2014), most of the locally owned Middle Eastern oil companies were failing to utilise the TQM tools despite the remarkable performance of this approach by companies in developed countries that were working in the international and local market for that sector. Essentially, Hendeicks and Singhal (2001) noted that despite the benefits obtained by implementing TQM, the actual positive impact will be seen in the long term. Thus, oil companies in developing countries that applying TQM need to be patient to achieve the expected results.

With respect to the Iraqi context, although the advantages and the important role of adopting TQM are widely known, the Iraqi companies in general, and oil companies in particular, are at the very initial stage of TQM implementation (IMOO, 2013). This could be attributed to the absence of formulating a clear strategy and setting up robust policies that will make both the international company operators and their local counterparts follow established procedures and standards (Oakland & Marosszeky, 2006). Also, the absence of the legal framework for TQM has impeded the realisation of clear leadership and the enforcement of penalties to defaulting companies that do not operate according to local environment of the country and the global perspective of operational excellence (Jones & Seraphim, 2008). Furthermore, to the best of the researcher's knowledge, there is no model or framework to be considered by Iraqi oil industry as the official TQM framework which efficiently encourages and recognises the development of efficient TQM in such a significant industry. For these reasons the oil industry in Iraq requires a TQM approach in current conditions where there is such an emphasis on longer term sustainability. This approach is based on the implementation of TQM for improving the entire quality of performance of Iraqi upstream oil industry.

Therefore, this research focused on developing a framework which represents an initial step towards implementing effective TQM in Iraqi upstream oil companies.

With respect to the Iraqi context, although the advantages and the important role of adopting TQM are widely known, the Iraqi companies in general, and oil companies in particular, are at the very initial stage of TQM implementation. This could be attributed to the absence of formulating a clear strategy and setting up robust policies related to adopted and implemented quality initiatives such as TQM in the oil industry that can guide those companies according to the local environment of the country and the global perspective of operational excellence. Furthermore, to the best of the researcher's knowledge, there is no model or framework to be considered by Iraqi oil industry as the official TQM framework which efficiently encourages and recognises the development of efficient TQM in such a significant industry. For these reasons the oil industry in Iraq requires a TQM approach in current conditions where there is such an emphasis on longer term sustainability. This approach based on the implementation of TQM and considered appropriate for improving the entire quality of performance. Therefore, this research focused on developing a framework which represents an initial step towards implementing effective TQM in Iraqi oil companies.

3.6. Chapter Summary

In this chapter the researcher presents an overview about the oil and gas industry and its important rank in the global alongside a brief description of the main sectors in this industry. The chapter provides a brief information regarding the impact of oil industry on the Iraqi economy as it has contributed significantly to the GDP, which represents more than 70% of GDP and over 95% of government revenue. Hence, the economy of Iraq is based of oil.

After that the chapter highlights the role of the international oil companies working in Iraq to boost oil and gas industry development and production through four licensing rounds. Although the technical service contract and the production development contracts implemented by the four bidding rounds have helped to achieve their objectives, the author believes that the production sharing contract (PSC), which allows the two parties to equally share gains and liabilities will be more beneficial to the government of Iraq. The chapter, also drew attention to the important role of TQM in the oil industry. It emphasises that the implementation of TQM in all the phases in oil sector operations should be encouraged and should form part of oil field standard operating procedures just as it is applied in the developed countries.

CHAPTER FOUR

RESEARCH METHODOLOGY

Chapter 4: Research Methodology

4.1. Introduction

This chapter presents the research methodology which underlies this study. The aim of the chapter is to discuss and describe various methodological concepts that informed the research approach and methods, which were adopted in this study as elements of the research design. Accordingly, this chapter discusses the various possible philosophical research stances and a justification for the particular philosophical stance, which was adopted as appropriate for this study, the main research approaches, the research strategy adopted in this research, the time horizon and the research techniques required for data collection and data analysis.

4.2. Research Methodology

In the literature, it is widely agreed that research methodology represents a key element in any research and thus, it should be prepared prior to embarking on any course of inquiry in order to provide all the necessary methods and techniques required for accomplishing the academic research successfully. Research methodology refers to the procedures and principles of a logical process that is implemented in a scientific investigation (Fellows & Liu, 2009). In other words, methodology involves a logical procedure, based on philosophical principles, which guides the design of the research so that it validly and reliably achieves its aims and objectives. Collis and Hussey (2003, p.55) defined research methodology as "*an overall approach to the research process, from the theoretical foundation to the collection and analysis of the data".* According to Dainty (2008), research methodology does not only refer to the methods in a research, but it also includes the philosophical assumptions that support the research study; these influence actual research methods, which have been used to examine a problem or to collect and analyse data.

The literature reveals that various research methodology designs are available, among them the nested model illustrated in Figure 4.1 developed by Kagioglou et al. (2000). The nested model includes three main layers to establish the research methodology. The first layer represents the research philosophy, which directs the second and the third inner layers. Research approach refers to strategies of inquiry, whereas research techniques refer to specific methods adopted for data collection such as questionnaire, interview, observation and focus group.

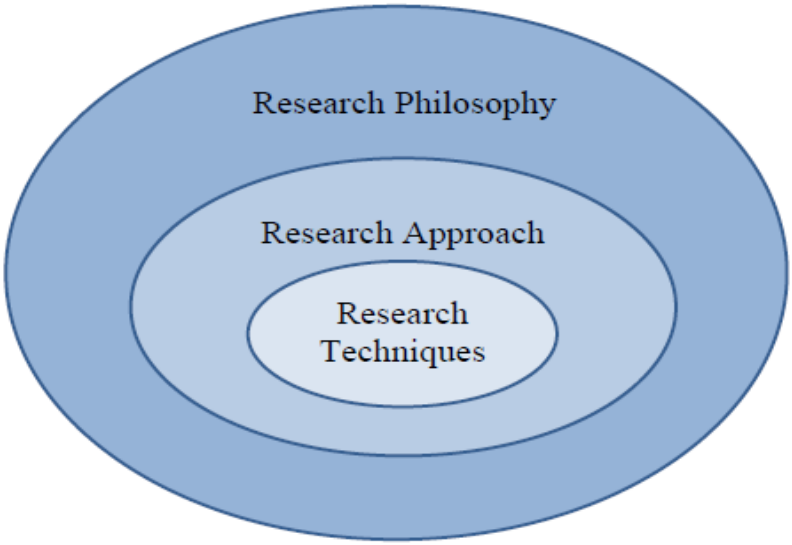


Figure 4.1 Nested Research Methodology, (Kagioglou et al., 2000)

Creswell (2014) presents another model or framework of research design. It also includes three interrelated steps as shown in Figure 4.2. The model begins by identifying the philosophical position guiding the research design. Appropriate and applicable research methods are then selected for data collection and analysis.

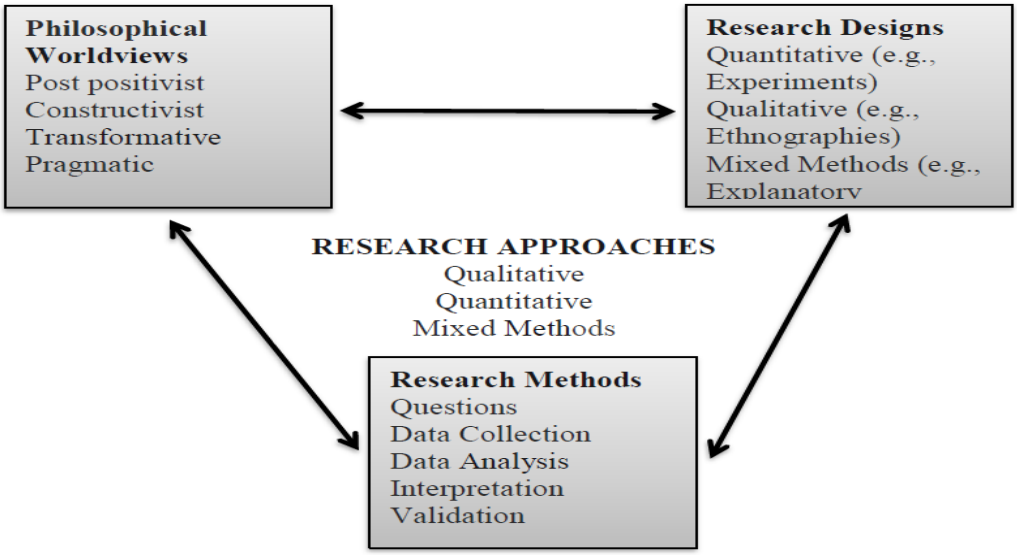


Figure 4.2 A Framework for Research Design (Creswell, 2014)

Whereas the nested model and the research design model each includes three layers, Saunders et al. (2016) introduced the onion model, which contains six step resembling the layers of an onion. As illustrated in Figure 4.3, these main steps from outer to inner, involve; research philosophy, research approach, methodological choice, research strategy, time horizon, and techniques and procedures. Although, the research onion seems more complicated as it

involves more layers, it provides the researcher with a clear direction to establish the research properly and applicably via a series of logical steps. Therefore, in order to clarify the components of a research methodology, this research follows the research onion model of Saunders et al. (2016) as it provides a systematic order of processes beginning from the research philosophy down to the techniques and procedures. In addition, it gives the researcher clear guidelines to become more familiar with up-coming stages, thus pave the way to achieve the research aim.

Having discussed that, the structure of this chapter will be based on the sequences of each layer of the research onion model and how these layers support the aim and objectives of this research.

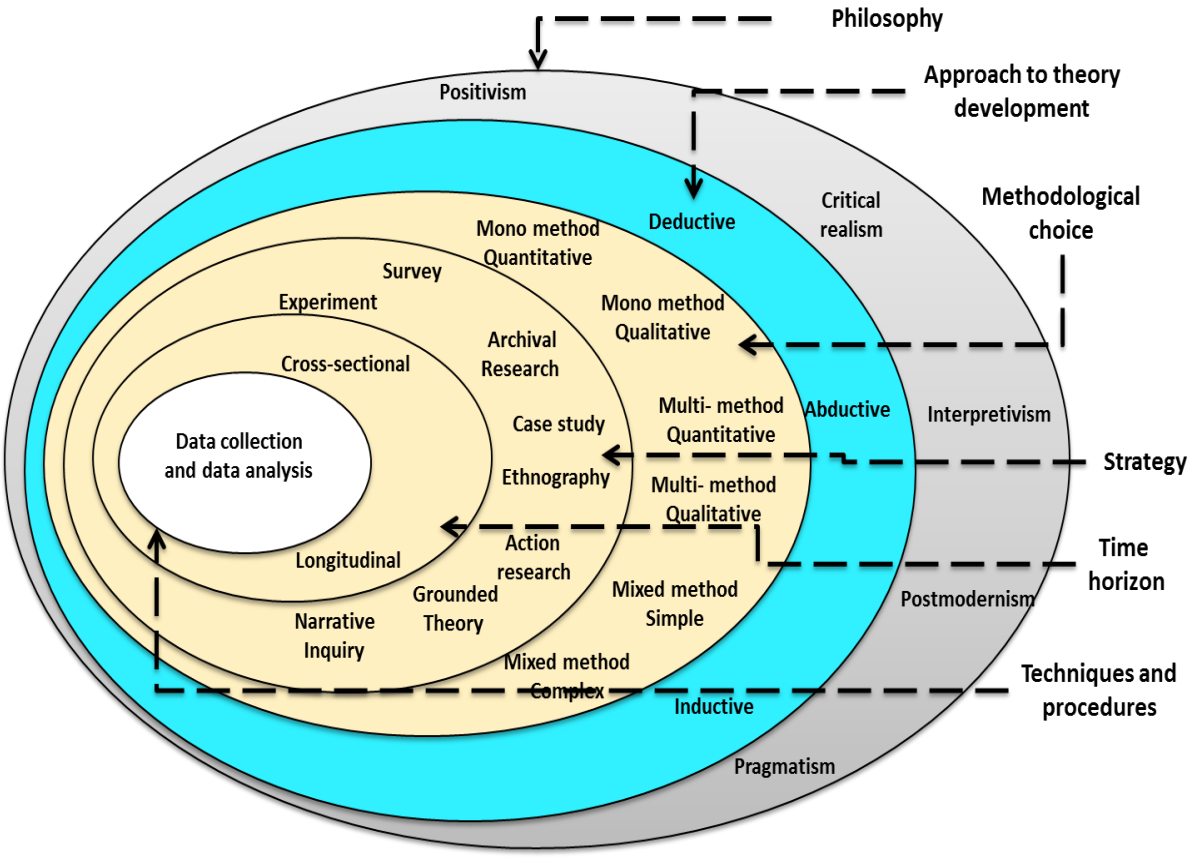


Figure 4.3 Research Onion, (Saunders et al., 2016)

4.3. The Research philosophy

The first step which should be taken into account when designing the research method is the research philosophy. Saunders et al. (2016, p.124) stated that research philosophy *refers to a system of beliefs and assumptions about the development of knowledge*. Easterby-Smith

(2012) highlighted three main reasons which are useful for understanding research philosophy issues. First of all, they emphasise that it can encourage the researcher to clarify research designs. Second, knowledge of philosophy can assist the researcher to recognise which one of the designs would work appropriately. Third, knowledge of philosophy can assist the researcher to identify, or to create designs that might be outside the researcher's past experience. According to Pathirage et al. (2008), research philosophy deals with the entirety of the epistemological, ontological and axiological issues and activities which guide research practices. Likewise, Saunders et al. (2016) examine three major ways of thinking about research philosophy namely: ontology, epistemology and axiology.

4.3.1. The Research Ontological Assumption

Ontology refers to a philosophical branch of study that deals with the different views of the nature of reality (Creswell et.al. 2007). The main ontological positions are objectivism and subjectivism (Saunders et al., 2016; Easterby- Smith et al., 2012). The ontological position of objectivism is based on the assumption of a mind-independent external reality which can be discovered through adopting various approaches based on observation and the avoidance of bias on the part of the researcher. Theories or hypotheses can be postulated to explain certain phenomena, but these theoretical stances must be tested by strict procedures of scientific observation. Data obtained from such observations either support and substantiate the theory or hypothesis, or lead to abandoning or modifying the theory based on the data. This approach to testing theory is often called positivism or, more recently, post positivism. On the other hand, the ontological position of subjectivism asserts that phenomena and their meanings are always accomplished by the actors. It posits that reality as such is unknowable and is perceived and interpreted in different ways by the various social actors. Subjectivism in social sciences is concerned with social phenomena, which involve social activity and it is most amenable to the approach which is called interpretivism (Saunders et al., 2016). Table 4.1 illustrates a comparison between objectivism and subjectivism philosophies

Table 4.1 Comparison between Objectivism and Subjectivism (Easterby-Smith et al., 2012)

Ontology	Objectivism	Subjectivism
Truth	Single Truth	There are many truths
Facts	Facts exits and can be revealed	Facts depend on viewpoint of observer

Due to the fact that this research evaluates and investigates the key factors required for the effective implementation of TQM within Iraqi oil companies, it will involve gathering perspectives from responders regarding their perceptions and interpretations of barriers to TQM implementation as well as investigating their views of the potential benefits of applying TQM within the Iraqi oil companies. Therefore, the research will involve social activity and it will focus on the interaction between user, phenomenon and process, and it is used to understand situations. Thus, this study tends towards embracing a varied degree of commitment to objectivism and subjectivism

4.3.2. The Research Epistemological Assumption

Epistemology is mainly concerns about "how we come to know what we know" (Grix, 2010). It focuses on how can acquire the truth of the matter under investigation and what constitutes valid knowledge (Grix, 2010; Saunders et al., 2016). Epistemology, in other words, refers to what should be regarded as acceptable knowledge (Dainty, 2008). The two major positions under epistemology are positivism and interpretivism. The positivist philosophy formulates hypotheses developed from theory and these hypotheses are then tested and either supported or modified in the light of data analysis. The positivist approach tends to identify and evaluate by providing an explanation for the phenomenon under investigation. This explanation proceeds by establishing links between different variables and relating them to a specific theory (Neville, 2007).

The positivist believes that reality can be observed, studied and even modelled. The interpretivist philosophy is focused on the perceptions of human actors in relation to their understanding of the phenomenon under investigation. The interpretivist views reality as something which can be interpreted and that theories can be proposed to define new knowledge according to that interpretation (Saunders et al., 2016). Interpretivist philosophy assumes that people are more likely to influence events and act in an unpredictable manner (Neville, 2007).

In addition to the interpretivism and positivism there are other epistemological paradigms that expand the methodological base in favour of alternative approaches (Voordijk, 2009). Pragmatism is another epistemological position related to scientific enquiry (Creswell, 2007). He further asserted that researchers who hold worldviews feel that pure interpretivism and positivism do not entirely align with the objectives of their research. Additionally, he maintains that a participation worldview should contain an action agenda for reform that may

change the lives of the participants. According to Robson (2011), pragmatism combines elements of multiple methods from philosophical positions. Moreover, Sieber (1973, cited in Kassim, 2012) articulated that because both approaches have inherent strengths and weaknesses, researchers should employ the strengths of both approaches in order to understand better social phenomenon.

This research attempts to gain an understanding of the fundamental issues related to implementing TQM in Iraqi oil companies. Hence, the researcher interprets some important aspects acquired from the top and middle as well as operational levels in the oil company investigated. Additionally, the research is based on these features of the philosophy and uses an epistemological perspective to look for meaning behind people's actions. Therefore, this study leans more towards adopting a varied degree of commitment to interpretivism and positivism. Therefore, the epistemological stance of this research is based on pragmatism position.

4.3.3. The Research Axiological Assumption

The last research philosophical assumption is axiology. It is a branch of philosophy that studies judgments about values (Saunders et al., 2016). According to Creswell (2014), axiology is a value which is determined by objective criteria or human belief, interests, and experience. Different people have their different opinions due to their backgrounds, experiences and beliefs of what the truth should be. Therefore, an assumption has to be made about whether axiological philosophy is value-free and unbiased or value-laden and biased (Colis & Hussey, 2003). Positivist research, tending towards quantitative and deductive methods, seeks to be value-free through its objective testing of hypotheses by statistical means. (Nachmias et al., 1996). Yet, the choice of variables or the way questions are framed can often conceal certain value judgments. By contrast, the interpretivist approach accepts that research is often charged with values due to the close affinity between the researcher and the matter being investigated (Healy & Perry, 2000). The researcher is not detached from the matter under investigation, but seeks to find ways to improve management practice in Iraqi Oil. Based on this debate, this research leans more towards being value-laden as the research choices are determined by human interests, backgrounds, experiences and beliefs and the researcher hopes to add value to this research.

4.3.4. Conclusion of philosophical stance of this research

In conclusion, based on the aforementioned sub-sections in relation to philosophical stance, this research is based on pragmatism philosophical perspective which mainly falls between a combination of objective and subjective paradigms regarding ontological assumption and fall between interpretivist and the positivist paradigms from epistemological assumption. This is attributed to the fact that the research adopted a mix method approach to develop the TQM framework. Hence, pragmatically the research incorporates the strengths aspects of both quantitative and qualitative approaches. This view allows for cognizant recognition of the research techniques thus, facilitates adoption of research methods with respect to their value that helps address the research objectives.

Having discussed the research philosophy the next section will focus on the research approach.

4.4. The Research Approach

There are three alternative research approaches, namely inductive, deductive and abductive. The inductive approach aims at developing a theory based on the analysis of the data. (Saunders et al., 2016). The inductive research proceeds by generalising from particular context-specific data as shown in Figure 4.4 (Collis & Hussey, 2003; William, 2006)). This is often referred to as a bottom-up approach (William, 2006). Thus, in this approach, theory emerges f from the data analysis (Yin, 2014).

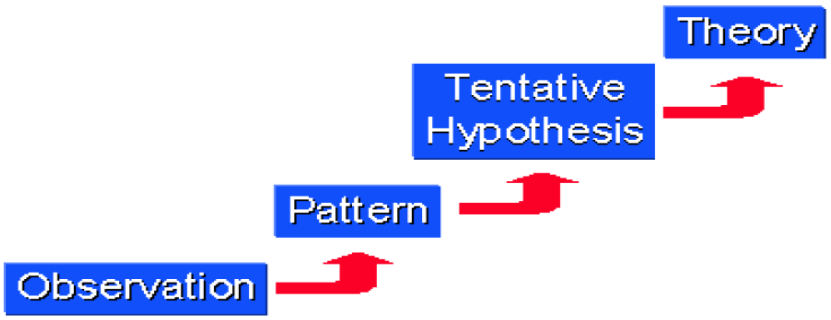


Figure 4.4 Inductive research approach (William, 2006)

The deductive approach is essentially theory-driven and seeks to confirm or refine existing theory through hypothesis testing (Saunders et al., 2016). Thus, taking the existing theory as its point of departure (Yin, 2014), it seeks to move from the general to the specific as shown in Figure 4.5 (Collis & Hussey, 2003; William, 2006) and is often referred to as a top-down approach (William, 2006).

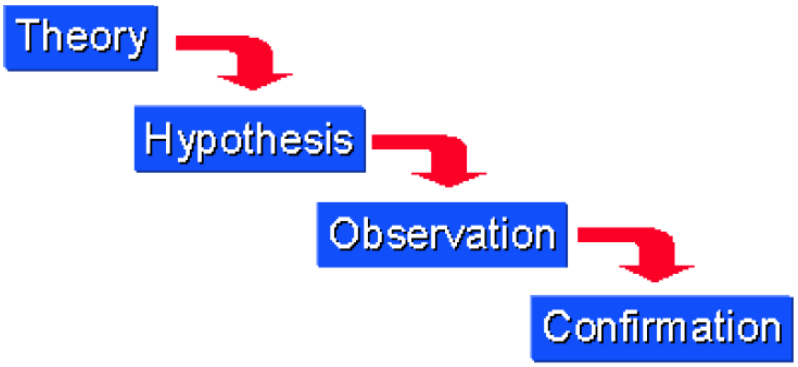


Figure 4.5 Deductive research approach (William, 2006)

The abductive research approach is a combination of deduction and induction. According to Suddaby (2006), in Saunders et al. (2016) *"instead of moving from theory to data (as in deduction) or data to theory (as in inductive, an abductive approach moves back forth, in effect combining deduction and induction"*. In most of the research cases, it is difficult to separate the deductive and inductive approaches. The combination of deductive and inductive approaches within the same research is not only perfectly possible, but it is often advantageous (Saunders et al., 2016). Figure 4.6 illustrates a "V model" that represents both deductive and inductive combined (William, 2006).

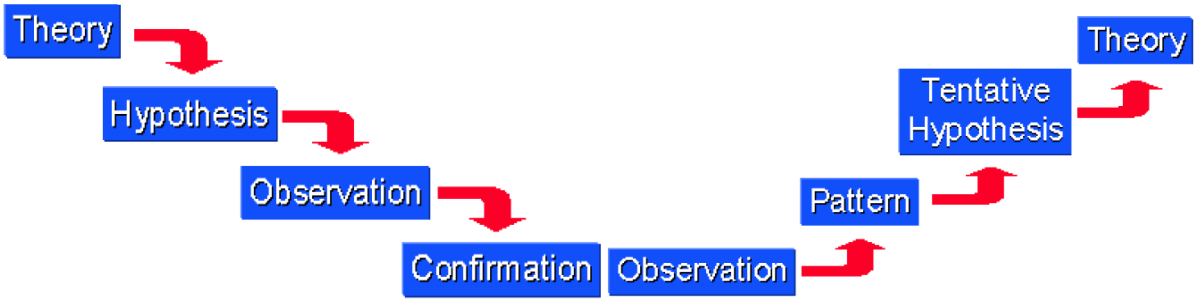


Figure 4.6 Abductive research approach (Adapted from William, 2006)

This research study will adopt the combination of deductive and inductive approaches. Deductive approach will be used in developing the initial conceptual framework from the literature that identifies the key elements of TQM in Iraqi oil companies. The research also intends to seek a deeper understanding of the phenomenon of TQM from different perspectives depending on the perceptions of decision-makers and leaders in the company being investigated by choosing the inductive approach. Thus, the abductive approach was expected to lead the order of data collection in this research. To distinguish between the three approaches, the aspects of each approach are shown in Table 4.2. The following section will discuss research strategy pertaining to the research. Figure 4.7.

Table 4.2 The major differences between the deduction, induction and abduction approaches, (Saunders et al., 2016)

Deduction	Induction	Abduction
When the premises are true, the conclusion must also be true	Known premises are used to generate untested conclusions	Known premises are used to generate testable conclusions
Generalising from the general to the specific	Generalising from the specific to the general	Generalising from the interactions between the specific and the general
Data collection is used to evaluate hypotheses for an existing theory	Data collection is used to explore a phenomenon, identify themes and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes, locate these in a conceptual framework and test the results through subsequent data collection
Theory falsification or verification	Theory generation and building	Theory generation or modification, using existing theory where appropriate, to build a new or modify existing theory

4.5. The Research Strategy

Following the research onion framework, the next layer is the research strategy which is determined by the philosophical assumptions and type of research questions, aims and objectives, the extent of existing knowledge relevant to the matter under investigation and available resources of time (Saunders et al., 2016). Yin (2014), lists a number of research strategies in social science research which include: experiments, surveys, histories, analysis of archival information and case studies as illustrated in Table 4.3.

The author pointed out three conditions which can be used to select the appropriate strategy for research:

1. The type of research question posed.
2. The extent of control an investigator has over actual behaviour.
3. The degree of focus on contemporary as opposed to historical events

Table 4.3 Aspects of research strategies, (Yin, 2014)

Research strategy	Forms of research Question	Requires control of Behavioural events	Focuses on Contemporary
Experiment	How, Why?	Yes	Yes
Survey	Who, What, Where, How many, How much?	No	Yes
Archival analysis	Who, What, Where, How many, How much?	No	Yes/No
History	How, Why?	No	No
Case Study	How, Why?	No	Yes

Creswell (2014) indicated that, although each strategy can be used to answer specific questions and to investigate the phenomenon from a different perspective, each one of these strategies has different biases, Creswell added, that using a mixed research methods strategy can help the researcher reduce the possible biases of each method.

There are various appropriate research strategies associated with the qualitative method. However, the common research strategies in business research are experiment, survey, action research, ethnography and case study (Saunders et al., 2016; Easterby-Smith et al., 2012).

With respect to experiment and survey strategies, according to Yin (2014), the experiment strategy is mainly carried out under controlled laboratory conditions in which the phenomenon is abstracted from its particular context and usually involves the identification of associations between variables and hypothesis tests. Likewise, the survey strategy is usually associated with the deductive approach (Saunders et al., 2016). Thus, data are often obtained by using a questionnaire as a significant method for collection of large amounts of data.

Both experiment and survey strategies have been avoided by the researcher because the philosophical stance of these strategies is positivism, objectivism and value-free, while the philosophical position of this research tends towards interpretivism, subjectivism and a value-laden research.

The third strategy is ethnography; this strategy is suitable for investigating the characteristics of people, their societies and customs. Under this strategy, the researcher uses socially acquired and shared knowledge to understand and interpret human activities (Collis & Hussey, 2003). Saunders et al. (2016) defined ethnography as "*a research strategy that is very*

time-consuming and takes place over an extended time period as the researcher needs to immerse herself or himself in the social world being researched as completely as possible". Due to the time involved, an ethnographic research strategy would not be appropriate for this research. Also, it required the researcher to become a member of the research environment being studied, a matter which is not practically possible for the researcher to consider, in addition, to immersing himself deeply in the life of the social group being researched.

The fourth strategy is action research which, according to Collis and Hussey (2003), is based on the assumption that the social world is constantly changing and both the researcher and the research are part of that change. Therefore, this strategy requires a close collaboration between researcher and participants. The action research strategy has been excluded by the researcher because this strategy requires repeated processes to implement an action. Moreover, this research does not intend to influence or change the attitudes or behaviour of the participants or the environment.

4.5.1. Selecting case study as a focused strategy for this research

Since the philosophical stances of this research are interpretivism, subjectivism and involve a value-laden approach, this research adopted case study as the most suitable strategy for achieving the research objectives. Yin (2014, p.16) defined a case study as an *"empirical inquiry that investigates a contemporary phenomenon (the case) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident"*. The author added that case study strategy is amenable to the employment of different methods for generating data which, when combined, can yield rich and in-depth information relevant to the matter being investigated. Saunders et al. (2016) emphasise that a case study strategy can be a perfect method of enabling the researcher an opportunity to challenge an existing theory and also can provide a rich source for new research questions. Yin (2014) pointed out that case studies are appropriate for answering "how" or "why" type questions and that they were most suitable for investigating a contemporary phenomenon which had not received much attention in previous research. Miles and Huberman (1994), stated that the combinations of both quantitative and qualitative data have been permitted in case studies to accomplish different aims and to serve different purposes. Likewise, Yin (2014, p.12) also supports this argument: "*the case study's unique strength is its ability to deal with a full variety of evidence: documents, artifacts, interviews, questionnaires and observations*". Thus, the case study strategy can provide both breadth and depth in its findings as it is amenable to employment of different types of data collection strategies.

According to Bell (1993), a case study is most useful for an in-depth study of a phenomenon within defined time parameters. In the same context, Easterby-Smith (2012) pointed out that case study looks in-depth at one, or a small number of departments, events or individuals over a period of time. Also, by using a case study the researcher can examine the studied phenomena or the real-life situation. Moreover, it allows gaining an in-depth picture of the relationships and processes within the phenomenon (Denscombe, 2010). Furthermore, in term of data collection, a case study approach does not require a particular type of evidence. Therefore, the benefits of using a case study as a method are that the researcher can implement a wide range of methodological approaches within the combination of data collection processes such as qualitative interviews and quantitative questionnaires surveys to strengthen research validity (Dooley, 2002).

According to Saunders et al. (2016), the purpose of a research study can be categorised as exploratory, descriptive, explanatory or evaluative. Due to the exploratory nature of this research, since there is little previous knowledge about the phenomenon and no clear understanding of the subject being researched, this research will adopt a case study data collection strategy as the most appropriate strategy for answering the research questions of this study, which are exploratory in nature.

4.5.2. Case study design and unit of analysis

It is important to design the case study carefully and to clearly identify the unit of analysis. According to Yin (2014), there are four basic types of case study designs namely single case study holistic, single case study embedded, multiple case study holistic and multiple case study embedded. Each case study design is illustrated in Figure 4.7.

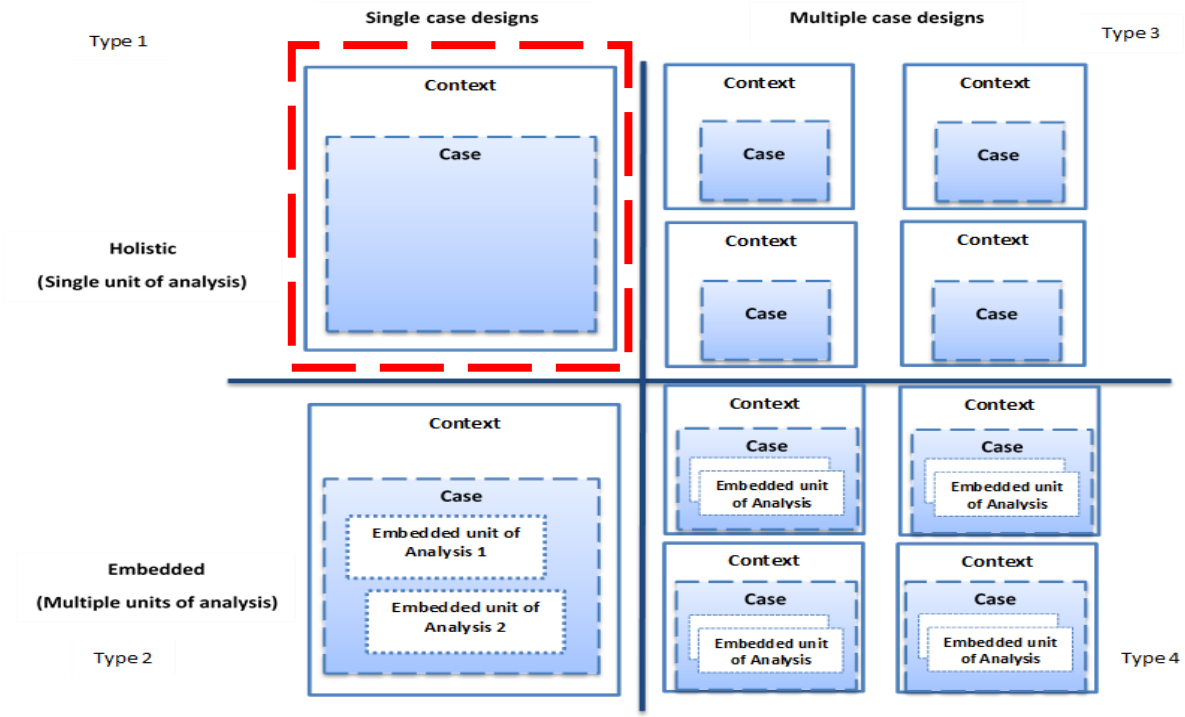


Figure 4.7 The major types of case study design, (Yin, 2014)

In terms of a single case study design, the focus of such a research is on one case in order to confirm critical issues or to add contributions to the theory or to investigate a new and unique case. Alternatively, a multiple-case study allows for comparisons between different cases of the same phenomenon and permits a more in-depth understanding (Yin, 2014). Case studies can also be either holistic or embedded. According to Saunders et al. (2016), holistic and embedded designs refer to the unit of analysis used. A holistic case study involves an organisation as a whole, whereas an embedded case study involves subunits within an organisation, such as departments or sections. Thus, the unit of analysis may involve more than one unit (Yin, 2014). Saunders et al. (2016) stated that unit of analysis could be an individual, a group, an organisation, an industry, a country, a programme or another issue. This research has adopted a single holistic case study. According to Yin (2014), one of the main reasons for adopting a single case study is that it is considered as the representative, unique or typical company among many different companies in the same industry. Accordingly, a single case study data collection strategy was used as the most appropriate strategy because this research was focused on one of the most significant and unique oil companies in Iraqi oil industry, which is the Iraqi Drilling Company (IDC) with its three branches in south, centre and north of Iraq (see Section 5.2 in chapter 5). Yin (2014) stated that a single case study has allowed for two options, holistic design and embedded design. As the IDC has the same administrative system in all of its three branches, the research boundary

takes the IDC as a case study boundary, hence a holistic design is appropriate. Also, since the major concern in this research is "TQM", the research will be focused on managers at different levels in the company. The unit of analysis of the research is TQM implementation within the IDC.

In summary, selection of the IDC as a single case study holistic design is based on the following criteria:

1. IDC is considered to be one of the most important oil companies in Iraq due to its significant role in the Iraqi economy, in general, and in the Iraqi oil industry, in particular. Also, it represents the only oil drilling company in Iraq and its activities cover the whole country through its three branches in the South, Centre and North.
2. Since the aim of this research is to develop a framework for TQM implementation in Iraqi upstream oil sector, the researcher has chosen IDC as representing the only company in Iraqi oil industry that has adopted and implemented quality management systems (ISO9001 and QHSE). Even though IDC did not classify itself as a TQM company, its philosophy derives from adopting and implementing the ISO9001. Moreover, despite their different objectives both TQM and ISO have some common elements, which is why many researchers such as Skrabec (1999), Sun (2000) and Escanciano et al. (2001), consider ISO as the first step towards achieving TQM. Having said that, IDC is leading edge and considered in a position to adopt and implement TQM.

Having discussed the research strategy, the next section will explain the research choice.

4.6. The Research Choice

The research choice, as the next layer of the Saunders et al. (2016) framework, concerns the option of adopting either a quantitative or qualitative method or a combination of both in a mixed methods approach. Quantitative research generally involves collecting numerical data which is then analysed using descriptive and inferential statistics.(Saunders et al., 2016). Quantitative research methods have often been considered as generating hard data such as results from survey techniques (Amaratunga et al., 2002). The survey is a popular and common strategy in business and management research, that tends to answer who, what, where, how much and how many type questions. It is often associated with the deductive approach, with a large amount of quantitative data, which can be used to suggest possible

reasons for relationships between variables. However, there are drawbacks when using a questionnaire within the survey strategy, such as the capacity of doing it is badly or of framing questions which are ambiguous and therefore validity could become an issue (Saunders et al., 2016). Quantitative research is based on the closed question which results in problem type definitions. Explanation of the question is based on existing theories (Jonker, 2009).

By contrast, qualitative data may use some statistics, but is predominantly narrative or textual in nature. The qualitative method refers to expressions of reality through people observations in natural situations (Amaratunga et al., 2002). In the qualitative method, the researcher does not start his research by testing a theory, model or concepts (Jonker, 2009). The researcher's attitude needs to be unprejudiced to achieve an understanding of people's behaviour in a situation which has not been studied because it should be a systematic search for the unknown. Also, qualitative research is based on an open question. However, the choice is not a binary one as there is another strategy called a mixed methods approach. To choose research methods, the researcher, therefore, will either use a single data collection technique and corresponding analysis procedures as a mono-method, or either use more than one data collection technique and analysis procedures as in multiple methods. Figure 4.8 illustrates types of choices that could be used in the research study (Saunders et al., 2016).

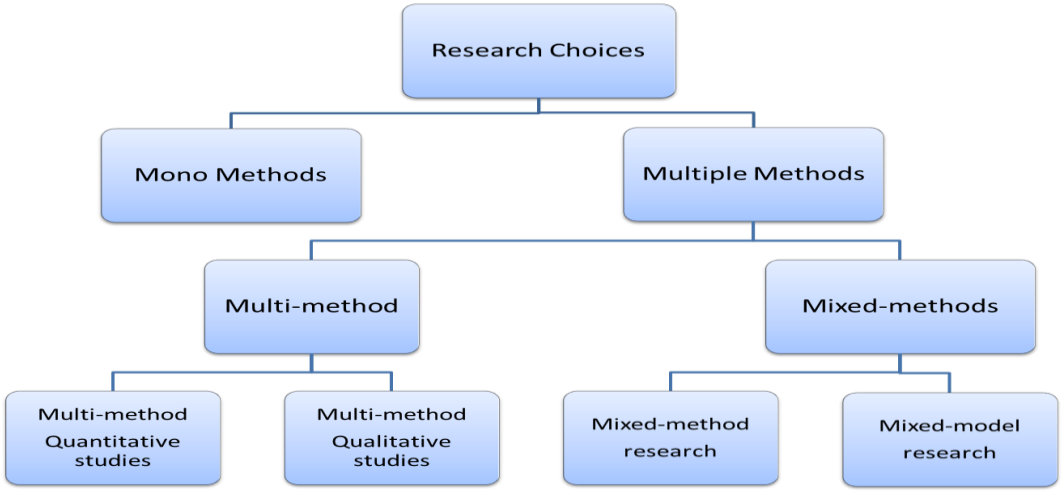


Figure 4.8 The research choices, (Saunders et al., 2016)

According to Saunders et al. (2016), mixed method research uses both quantitative and qualitative data collection techniques and analysis procedures. These can take place at the

same time (parallel) in which case they are conducted and analysed independently of each other. A mixing phase is then required such as triangulation to combine the results. However, there is an epistemological problem in the same researcher operating within conflicting paradigms. Furthermore, there is a risk of a lack of corroboration between the findings from both phases. An alternative mixed methods approach is sequential in nature where either the quantitative or qualitative method is conducted and fully analysed. From this analysis, the second phase is then prepared and conducted so that the risk of lack of corroboration is less. Thus, in a sequential mixed methods approach, one phase is dominant. For example, the exploratory mixed method may commence with a qualitative method and, based on the analysis and findings, it is followed up by a quantitative method in order to generalise the findings from the qualitative phase (Saunders et al., 2016).

In this research, the research aims to develop a framework to facilitate TQM implementation in the Iraqi upstream oil sector. Therefore, it was necessary to employ and utilise adequate data collection and analysis methods, which support the workability of the proposed framework. Hence, the research adopted the mix-method, as an appropriate choice. Accordingly, the qualitative technique utilized, attempted to provide a complete picture of the current status and future orientation of the oil company in terms of implementing TQM. It was chosen because of the basic philosophical assumption that people's behaviour and their experiences played important roles in this research. Additionally, the qualitative phase was used in order to design instruments and a quantitative phase in order to test initial outcomes. On the other hand, the quantitative research techniques have been chosen because of the significant amount of data and feedback it provides, the great access it allows to participants and the low cost involved. Moreover, the quantitative technique emphasised the critical issues that were found from the qualitative method; also it was amplified what emerged from the qualitative data analysis. Thus, a combination of qualitative and quantitative evidence including semi-structure interview and questionnaire reinforced the case study as well as helping to the collection in-depth data. The next section will focus on the time horizon.

4.7. The Research Time horizon

According to Saunders et al. (2016), the time horizon is the time framework used by most research studies for undertaking the research project. The authors declared that time horizon can be classified into two types: cross-sectional and longitudinal. In cross-sectional studies, the researcher studies one particular phenomenon at a particular time. Alternatively, a

longitudinal study focuses on a particular phenomenon and observes their changes and developments over time. Due to the limitations of this research, the researcher does not seek to examine changes or developments of a particular phenomenon over time. Therefore, a cross-sectional aspect has been considered as appropriate in this research; in other words, this research is focusing on a particular phenomenon at a particular time.

In the next section techniques for collecting data are discussed and the choice of the collection techniques used in the research are presented.

4.8. Data Collection and Management

In order to fulfil the aims and objectives of the research, the collection of relevant data is important (Fellows & Liu, 2009). The purpose of collecting data in this research is to elicit valid and reliable information from the participants in order to address the research questions. The process of collecting relevant data can be a complex one with limitations of cost, time and client confidentiality. There are two kinds of data which can be collected. The first is referred to as primary data as it represents new data that is generated by the research itself. Secondary data refers to data which has already been collected by another researcher, but which can be used to provide information for the current researcher. This can generally be found in a documentary form such as books, periodicals and reports or by means of other media such as radio, television and CD_ROM (Saunders et al., 2016).

In this study, primary data were collected through interviews and questionnaires and the different sources of data were brought together through triangulation. This process was used in order to minimise or avoid participant and researcher bias and to improve research validity and reliability.

4.8.1. Interview

The interview is considered to be as one of the most significant sources of evidence in a case study, since most case studies examine people's values or actions (Yin, 2014). An interview is a powerful tool for gaining rich information based on social actors' attitudes, knowledge, values and views (Gray, 2014). The interview has a specific strength; it can yield data quickly and in great quantity. However, it also has limitations and weaknesses (Yin, 2014). For example, the interviewees may be unwilling or may be uncomfortable sharing all that the interviewer hopes to explore. Many research commentators, including Saunders et al. (2016)

classify interviewing techniques as being either structured, semi-structured, or unstructured. Each kind of interview has its own disadvantages and advantages. A structured interview is considered as a quantitative research interview because it depends on using a predetermined instrument such as questionnaires and is based on identical sets of questions. In contrast, semi-structured and the unstructured interviews are considered as qualitative research instruments, because in general the researcher has a list of themes or topics to be explored, rather than present questions to be answered. This exploration is relevant to addressing the research questions and objectives (Greener, 2008; Saunders et al., 2016).

Regarding the unstructured type of interview, it is used to explore a general area of interest in depth. Also, it allows the interviewees, freely and without restriction, to express themselves which leads to a richness of data (Saunders et al., 2016). However, semi-structured interviews are based on question guides, rather than a strict sequence of questions. In this kind of interview, the interviewees can answer the questions how they want and the focus is on the interviewee, not the interviewer (Greener, 2008). Also, it allows the interviewer to build trust with the interviewees, thus encouraging truthful answers that will improve the validity of the research findings (Gray, 2014). It also allows the interviewer the flexibility to ask further questions to clarify issues.

Semi-structured interview as stated by Saunders et al. (2016), can be very useful for understanding a context and finding out what is happening in an exploratory study, or to understand the reasons behind participants' attitudes. Moreover, Bryman (2016) pointed out that in situations when a researcher is familiar with the idea being researched and the research focus is in a concentrated area, semi-structured interviews is a suggested data collection technique. This research will investigate particular themes related to developing a framework to facilitate TQM implementation, thus making semi-structured interviews an appropriate technique to gather data from the interviewees. Appendix B illustrates the semi-structure interview questions that were conducted with 10 top managers who occupied high-level positions in the company to extract valuable information, opinions and interpretations on the research topic. According to Saunders et al. (2016), it is more likely for managers to agree to a semi-structured interview, especially when the topic is considered interesting and relevant to their work. The authors added semi-structured interview may be most suitable approach for either complex or open-ended questions; thus, it can be used in an exploratory study to seek new insights.

4.8.2. Questionnaire

The questionnaire is a pre-formulated written set of questions distributed to specific individuals aiming at gathering information (Saunders et al., 2016). It is one of the most common data collection techniques in the world of education and business. Moreover, many individuals have experience in term of using the questionnaire as a data collection method (Gray, 2014). Even though, questionnaires may be used as the only data collection technique, it is often recommended that they should be linked with other methods in a mixed method research design (Saunders et al., 2016). However, Gray (2014) has shown that the use of questionnaires in their own right has many advantages. First, questionnaires save both money and time, since they can be sent to many respondents with low cost. Secondly, respondents' feedback and replies are returned within a short amount of time. Thirdly, coding the questions is often a very simple and quick process. Lastly, the respondents can complete questionnaires at times and places that are suitable for them. Moreover, there are many questionnaire designs such as self-administered and interviewer administered. The former is usually answered by the respondents such as by means of electronic questionnaires using the internet, some companies offer online questionnaire sites such as www.surveymonkey.com (Greener, 2008).

In this study, a questionnaire survey, has been used to provide quantitative data as a part of the case study. The process of designing and developing the questionnaire was carried out after gaining a comprehensive understanding from interviewing senior managers in the subject. In addition, the researcher conducted an extensive review of the most relevant literature that included, among others, books, journals, articles, internet materials, and PhD theses. Furthermore, the researcher reviewed previous questionnaires on the subject of TQM in order to draw up the final version of the questionnaire. This was done in order to ensure that the content and the structure of the questionnaire are completely valid.

The researcher has targeted the questionnaire survey at specific managers and employees in the company. This is due to the fact that the questionnaire includes different kinds of questions that are related to quality, quality management as well as to TQM. These questions contain specific issues that were not relevant to all the staff in the company. Therefore, the questionnaire survey has included only middle-level managers, junior level managers and the staff of the quality management department in the company.

To measure the relevant factors and indicators, the questionnaire invited responses by using a Likert-style rating scale. Many research design authors such as Saunders et al. (2016)

comment on the usefulness of Likert-style questions for measuring the strength of agreement or disagreement with statements designed to gauge the relative importance of certain factors. Likert scales can have many points, including an even number of points where there is no neutral position and in which the respondent is forced to be on one side or the other. However, in this research, a five-point scale was considered to be adequate for gauging strengths of opinion or behaviour and that the middle neutral position is valid as it may genuinely reflect a respondent's position. The scale ranged from strongly disagree to strongly agree and was applied to all statements with the exception of the first and second sections.

The questionnaire was divided into five sections, (see Appendix A). The first section was about the characteristics of the respondents that includes three questions. The second section asked about TQM awareness and knowledge in five different questions. While, the third section was relevant to the questions asked about the key factors of TQM and contains nine questions. The fourth section asked about exploring barriers that hindered TQM implementation in the company and includes seven questions. Finally, the potential benefits of applying TQM in the company were included in section five and consists five questions.

4.9.Research Sampling

Sampling techniques that can be used for data collection can be classified into two major categories: probability sampling and non-probability sampling (Saunders et al. 2016). Probability sampling techniques are used in quantitative studies when the probability of each member being included is known (Teddlie & Yu, 2007). Probability sampling includes simple random sampling, systematic random sampling, stratified random sampling and cluster random sampling (Saunders et al., 2016). In random probability sampling, each member of the population has an equal chance of being selected. On the other hand, non-probability sampling techniques are used when the probability of inclusion for each member in the whole population is not known; this occurs mainly in qualitative studies (Gary, 2014). A non-probability sampling includes quota sampling, purposive sampling, snowball sampling, self-selection sampling and convenience sampling (Saunders et al., 2016). Figure 4.9 shows some sampling techniques under each of the basic types.

Sekaran (2003, p.269) stated that "probability sampling designs are used when the representativeness of the sample is of importance in the interests of wider generalisability"; however when other factors such as time become critical, non-probability sampling is generally used. Saunders et al. (2016) indicated that, if a researcher needed to meet a research objective and/or research question, non-probability sampling might be the best choice since non-probability sampling focused on a small group of participants or a case study selected for a specific purpose. In contrast, quantitative research depends on large samples of participants whereas qualitative research relies on small numbers or even a single case. Purposive sampling is used when the participants being investigated are chosen because they can provide important knowledge that could not be gained from other sampling techniques (Gray, 2014).

In terms of the sample size, Yin (2014) stated that there was no fixed number of interviews in qualitative research; instead, this number depended on finding out what was needed to be known. Saunders et al. (2016) further pointed out that, while sample sizes in quantitative studies depended on the overall population size, a different logic called 'replication logic' applied in qualitative research. In other words, a qualitative researcher must keep interviewing until he/she achieves `replication' or the saturation point (i.e. hearing the same stories repeated once again and again), at which point no new information is expected to emerge during the interviewing process. In addition, it should be kept in mind that the selective sample represents the real world and could lead to objective conclusions.

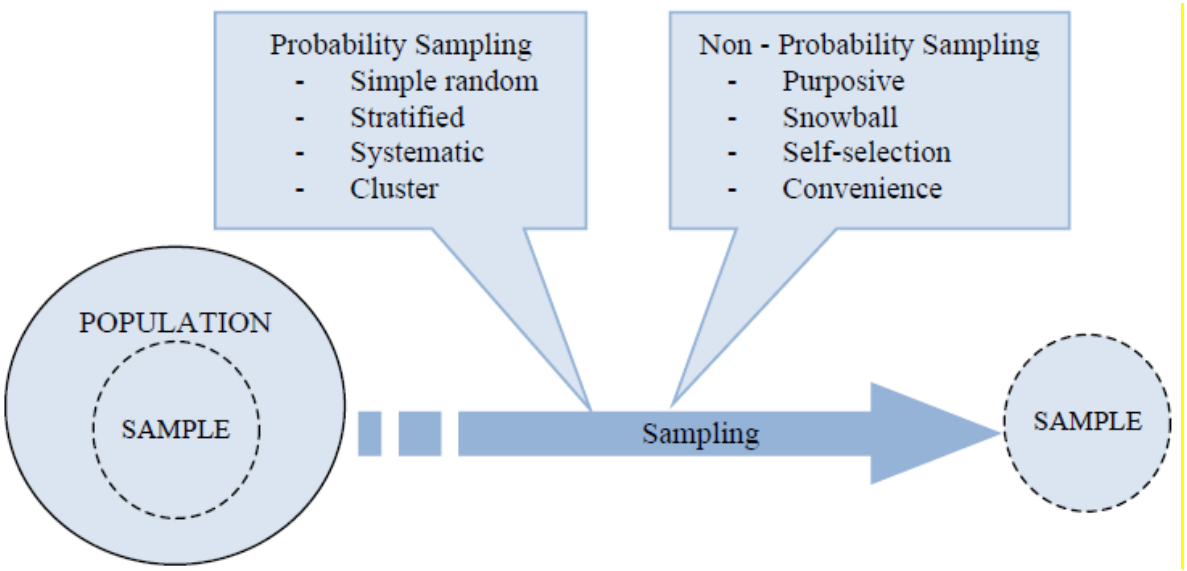


Figure 4.9 Sampling methods (Adapted from Saunders et al., 2016)

This study aims at developing a framework to facilitate TQM implementation in Iraqi upstream oil sector. In order to gain fruitful, rich and sufficient information from the respondents the quality of the sample is, therefore, more important than its quantity in this research. Moreover, to achieve the maximum benefit from the results collected, the selective sample should cover the qualified participants who can provide informed answers to the study questions. Thus, in terms of interviewees' sample, the researcher selected a purposive sampling of 10 participants in the semi-structured interviews with senior managers in the company. Purposive sampling is best used when selecting participants as it is based on the personal judgment of the researcher in accordance with the requirements of the research.

On the other hand, regarding the questionnaire sample, quantitative research requires large samples of participants. Larger sample sizes imply lower errors when generalising to the full population (Saunders et al., 2016). Sekaran and Bogie (2010) indicated that selecting the suitable sample of participants was an essential part of the successful process of data collection. In this research, the population size is 249 which consists a wide range of the participants including: middle and junior managers as well as the staff of the quality management department. Therefore, to calculate the sample size for this research, Sekaran and Bogie (2010) calculated that from a population of approximately 250, a sample size of 152 was required as shown in Table 4.4. Similar results of 152 were obtained from survey Monkey: sample size calculator. Therefore, with respect to the type of questionnaire survey sample, the researcher selected simple random sampling, which allows the researcher to select

a sample number without bias. It is best used when the researcher has an accurate sampling number that lists the entire population of the study.

Table 4.4 Sample size for a given population size (Sekaran & Bogie, 2010)

Population size	Sample size	Population size	Sample size
10	10	95	76
15	14	100	80
20	19	110	86
25	24	120	92
30	28	130	97
35	32	140	103
40	36	150	108
45	40	220	140
50	44	230	144
55	48	240	148
60	52	**250**	**152**
65	56	260	155
70	59	270	159
75	63	280	162
80	66	290	165
85	70	300	175
90	73	320	181

4.9.1. Response rate

In this study, a total of 152 questionnaires were distributed to the eligible sample, of which118 completed questionnaires were received as usable and ideal for the final analysis representing a response rate of 78 %. 34 questionnaires were excluded from the analysis of which 29 questionnaires had missing and uncompleted data and 5 questionnaires were unreturned to the researcher. Table 4.5 illustrates the number of questionnaire respondents and response rate. It is worth mentioning that the high response rate could be attributed to either the direct approach used by the researcher or the level of interest of the subject.

Table 4.5 Number of questionnaire respondents and response rate

Description	Number of respondents	Rate of response
Distributed questionnaires	152	100%
Total response	118	78%
Unusable questionnaire	34	22%

4.10. Pilot Study

A pilot study is a limited study carried out prior to the study proper in order to test a questionnaire, interview, checklist or direct observation with the purpose of minimising the possibility of respondents having problems answering the questions (Saunders et al., 2016). The internal validity and reliability of a study's data depend on the clarity and the structure of questions, as well as on the rigour of the pilot testing. A pilot study also facilitates an assessment of the questions' validity and reliability and ensures that the questions are clear, unambiguous and sensible. The aim of conducting the pilot study is ensure the clarity of the questions by gaining feedback and remarks from a small number of the targeted population, which is considered as a small experiment designed to gather comments and information prior to a major study in order to give the researcher an idea about the challenges or problems, which may appear with interview questions or the questionnaire questions (Yates, 2004). It helps the researcher to become aware of ambiguities or use of technical or unfamiliar language which could lead to misunderstanding a question and ultimately affecting the validity of the research. Therefore, a pilot study represents a significant preliminary step before conducting the actual interview and questionnaire. According to Sekaran (2003), the main objective of a pilot study is to check whether the questions in the interview or the questionnaire will be clear and understood by the participants. Moreover, it seeks to provide valuable information that can contribute to the accomplishment of the study.

The pilot study for the interview and questionnaire of this study was undertaken and carried out in four stages. The first and the second stages were conducted in the UK, while the third and fourth stages were conducted in Iraq. The first stage of the pilot study was carried out by researcher's supervisor, thus, the primary draft of the questions has been modified to enhance the validity of the questions. The second stage was conducted through distributing the questionnaire and semi-structured interview questions to a small size sample, targeting five current PhD students at the University of Salford, focusing on students with previous experience of interview skills and questionnaire design, to provide the researcher with

feedback related to design, wording, and layout. The third stage was conducted through distributing the questionnaire and the interview questions to three academic staff at the University of Basrah, focusing on specific experts with experience of TQM to provide the researcher with useful comments related to content and the structure of the questionnaire and interview as well as pointing out any potential misunderstandings or unclear questions. The fourth stage was conducted in the company where the research was to take place. Therefore, nine questionnaires have been undertaken as a pilot experiment in order to evaluate possibility, time and adverse events. The feedback received was encouraging and stimulating to deal with the whole sample which has been selected for the present study represented by the junior and middle managers as well as the staff of quality management in the company. Moreover, in term of interviews, the researcher conducted three face-to-face individual semi-structured interviews with two managers of the Department of Quality Management in the company in order to investigate whether there were any ambiguities or misunderstandings in questions as well as to collect feedback from them.

Following the completion of the pilot study, the participants' feedback and the opinions were used to modify the questions. The comments of the participants were considered very helpful and were addressed. Changes included omitting irrelevant questions, rephrasing and adjusting the language to make the questions clearer and understandable.

4.11. Data analysis

Once the raw data has been collected, a process of analysis is required as the final stage in the Saunders et al. (2016) framework. This results in the findings of the research. In accordance with Yin (2014), data analysis procedures can be defined as a process that contains examining, testing, classifying, tabulating or recombining both qualitative and quantitative evidence to address the preliminary proposition or findings of a study. As mentioned before, both quantitative and qualitative approaches were employed within this research. The questionnaire and the semi-structured interviews will be conducted with the different levels managers within the company. Yin (2014) advises that a strategy for data analysis should first be formulated to collate results so that they are in alignment with the research questions. Due to the fact that both qualitative and quantitative data have been collected, each requires a different approach to analysis after which a strategy of triangulation is required to combine the findings. This process is presented in the following sections.

4.11.1. Qualitative analysis

It is widely acknowledged that the key characteristic of qualitative analysis is focusing on text rather than on numbers. Saunders et al. (2016) found that there was no standard method for analysing qualitative data. The term qualitative is often used as a synonym for the term interview. It refers to the use of non-numerical data; hence, qualitative data typically refers to informational forms other than words, such as images or video clips that the researcher examines (Saunders et al., 2016).

There are different types of qualitative data analysis, such as content analysis and thematic analysis, (Gray, 2014; Saunders et al., 2016). Stemler (2001) stated that content analysis is commonly used to analyse transcript data by understanding and analysing it through classifying themes defined by the research questions and data. Likewise, Gray (2014) stated that content analysis represented one of the best-known techniques for analysing qualitative data.

Four different types of content analysis are generally available. Firstly, word based analysis, which is based on the word count by counting the frequency of identified words in the text; the significance of those words can be revealed by using the assumptions of the most frequently occurring words. Secondly, conceptual content analysis, which is based on the occurrence and presence of an identified concept and/or theme which is examined in the text

or sets of text. The prearrangement of concept or themes could be through the literature or could appear from the information itself. Thirdly, a referential content analysis which focuses on the underlying meaning or interpretation of the text based on the researcher's judgement. Fourthly, relational analysis approach which considers the relation between concepts inside the text (Busch et al., 2012).

For the analysis of the interview data in the current research, the researcher adopted both referential and conceptual content analysis. Such types of content analysis provide an opportunity to examine the interviewees' responses in multiple methods so as to determine which data are most important to this research, following the six steps suggested by Braun and Clarke (2006). These steps are presented as follows:

1. Familiarisation with the data. At this step the researcher transcribes the data and then reads and rereads the transcripts making notes to serve as an aide memoir.
2. Initial Codes. In this step features of interest are coded ensuring that the particular participant is noted in code form. At this stage the coding is kept as wide as possible to ensure that nothing significant is omitted.
3. Establishing themes. At this stage the codes are collected together into themes so that all important data is classified under a theme.
4. Reviewing the themes. Making sure that the themes work appropriately and match the coded extracts.
5. Refining and naming the themes as broad categories covering the data so that each theme is arranged to present an overall story.
6. Writing up the report. As the narrative unfolds, the picture emerges from the data supported by a careful and appropriate selection of extracted material from the analysis.

To facilitate the analysis, Nvivo software programme version 11 for data management and analysis was applied to the data collected from the semi-structured interviews. This programme is deemed to be a powerful software package designed to assist and facilitate the analysis and management of qualitative data.

4.11.2. Quantitative analysis

Quantitative data analysis is normally accomplished by utilising statistical data analysis techniques. Some of the most commonly used techniques are chi-square analysis, correlation analysis, regression analysis, factor analysis, etc. However, most quantitative data analysis begins with descriptive statistics to show various trends in the data. According to Amaratunga et al. (2002), whatever the nature of data that have been collected, it is appropriate to begin the analysis by examining the raw data to search for patterns. Much analysis of quantitative data is concerned with searching the data for various types of pattern so that hypothetical relationships can be established. This process is normally followed by inferential statistics to establish correlations or identify causal factors with a view to answering the research questions.

Thus, quantitative statistical analysis depends on the aim and stated objectives of the study, where the aim of the analysis is to obtain information about the situation of the study. Therefore, descriptive and inferential statistics have been followed in this study. Descriptive statistics are brief descriptive coefficients that summarise variables or specified datasets related to the population or a sample of it. The purpose of descriptive statistics is to make data collected more easily comprehensible by using graphs, tables and computation of various descriptive measures such as means, medians, ranges and standard deviations. These measures provide a view of the data as a whole accompanied by appropriate line graphs bar charts or pie charts. (Sekaran, 2003).

The descriptive analysis of this study includes graphical methods, percentage tables and central tendency particularly, means. In addition, measures of variability and dispersion such as standard deviations were obtained. The structure of the descriptive statistical analysis closely follows the structure of the questionnaire survey which includes five sections. The study utilised pie charts as a descriptive analysis method for the first two sections, while for the other three sections the study utilised a form of descriptive analysis: percentages, means and standard deviations to present the trends in the Likert scale responses. In determining the cell measurements for the Likert scoring the following procedure was followed: The range in the scores was from lowest score of 1 up to the maximum of 5 giving a range of 4 (5-1=4). The number of cells was 5 so dividing the range by the number of cells gives a cell length of 0.8 (5/4). Thus, the first cell length was 1 + 0.8 = 1.8. This is illustrated in Table 4.6.

The mean is the most frequently used measure of central tendency, but by itself is not sufficient to describe the data. A measure of dispersion is required to show the variation in the

data and the standard deviation was used in this study as a most appropriate measure. Additionally, percentages were used for comparative purposes.

Table 4.6 Likert Scale Interpretation (adopted from Siti Rahaya & Salbiah 1996)

Point Scale	Mean	Qualitative Interpretation	Level of agreement
1	1 < 1.8	Strongly disagree	Very low
2	1.8 < 2.6	Disagree	Low
3	2.6 < 3.4	Moderate	Moderate
4	3.4 < 4.2	Agree	High
5	4.2 <5	Strongly agree	Very high

Next, inferential statistics were applied to the data. Inferential statistics involve the use of statistical measures to make inferences about the population as a whole based on the sample results. This is achieved by examining relationships, trends and differences within the numerical data. Inferential analysis can help determine the strength of relationship within a sample. In other words, it can be used to assess the strength of the impact of independent variables on outcomes. The following types of inferential analysis are relatively common: Chi-Square Statistic, Anova, Correlation, and Regression. Chi-Square tests examine how well the obtained data fit expected values to discover significant differences in the data. Anova involves the analysis of the variances in a dataset in order to identify which variables had greater explanatory power in explaining the variance and would, therefore, be likely candidates to be significant factors.

Correlation is a bivariate analysis that measures the relationship or strength between two or more variables or datasets. The value of the correlation coefficient lies within the range of -1 to +1. If the coefficient is either -1 or +1 this would indicate perfection correlation. However, this rarely occurs in data analysis. On the other hand, a correlation of zero indicates that there is no linear relationship between the two variables. The first thing to consider is whether the coefficient has a minus or plus sign. A minus sign shows an inverse relationship between two variables signifying a tendency for an increase in one variable to be matched by a decrease in the other. A plus sign indicates a positive correlation signifying that an increase in the value of one variable is matched by an increase in the other (Marston, 2010). Also, it should determine the strength of the relationship between the variables/ factors. Different authors

have suggested different interpretations of values between 0 and 1; however, Cohen, (1988, cited in Pallant, 2013) proposed the following guidelines

- Small: the strength of correlation is low; r = 0.10 to 0.29
- Medium: the strength of correlation is medium; r = 0.30 to 0.49
- Large: the strength of correlation is strong; r = 0.50 to 1.0

If $p \leq 0.05$, then there is a significant linear relationship between variables/factors and on the other hand if $p > 0.05$, then there is no significant linear relationship between variables/factors.

To achieve the purpose of this study, it was important to analyse the relationship between the main variables/factors, by finding the relationship between the barriers that hindered TQM implementation and the key factors required for TQM implementation. On the other hand, analysing the relationship between TQM key factors and the potential benefits of achieving TQM implementation was also required. In fact, there are two main types of correlation: Spearman and Pearson. The difference between the two types of correlation is that the Spearman is appropriate for measurements taken from ordinal scales (Likert scale/ranked scale), while Pearson is most appropriate for measurements taken from an interval scale. Moreover, Spearman correlation utilises as a non-parametric test, while Pearson correlation utilises a parametric test (Field, 2013). According to Saunders et al. (2016), Spearman's correlation coefficient allows the data to be verified for the strength and significance of the relationships between the variables. In this study, the relationship between each of the two ranked factors classified as ordinally scaled, in addition to the normality test revealed that the data set are derived from non-normal distributions. Therefore, this study will rely on the non-parametric test, with ordinal type of data and Spearman correlation was utilised as an interferential statistical technique to be used.

Furthermore, it was necessary for data analysis to present results obtained for each type of the variable, where the relationship between variables has been analysed. Thus, with respect to the nature of this study, statistical measures of association and statistical trend detection methods have been employed. Furthermore, Excel and SPSS software programmes were mainly used for the data analysis procedures.

4.12. Triangulation

Triangulation is broadly defined by Amaratunga et al. (2002), as the combination of methodologies in the study of the same phenomenon with the aim of improving the validity of measurement. Gray (2014) indicated that, triangulation combines qualitative methods with quantitative methods, such that one group of individuals may be interviewed, while another responds to a questionnaire. Yin, (2014) identified the many benefits of including many sources of evidence and methods of analysis; it allowed the researcher to address a broader range of historical and behavioural issues. Creswell (2014) commented on the advantages that can be derived from triangulation viewing it as a kind of convergence in the findings, whereby each set of findings complements the other in a way that strengthens the validity and adds depth to the study. Nevertheless, in a mixed methods approach, there is always a risk of a lack of corroboration. There are four major types of mixed method designs: (i) sequential explanatory design; (ii) sequential exploratory design; (iii) concurrent triangulation; (iv) concurrent nested (Creswell, 2014; Saunders et al., 2016). In practice, it is often best to use mixed method approach. First, such an approach could be used to address different research questions. Second, involving a combination of methods (e.g. interviews and surveys) will not only assist in data triangulation, but also balance out any weaknesses in the data collection methods (Gray, 2014).

The sequential exploratory research design suites this research more, as the qualitative data will aid in developing an instrument for the second phase as the purpose of sequential exploratory research design is to explore a phenomenon in depth. Many authors such as Yin (2009) stated that multiple data collection methods gave a better insight into phenomena than would be provided by any single method. Therefore, the triangulation approach of this study is based on mixed method sequential exploratory design which is involved the collection and analysis of qualitative data followed by the collection and analysis of quantitative data. Figure 4.10 explains the triangulation approach of qualitative and quantitative.

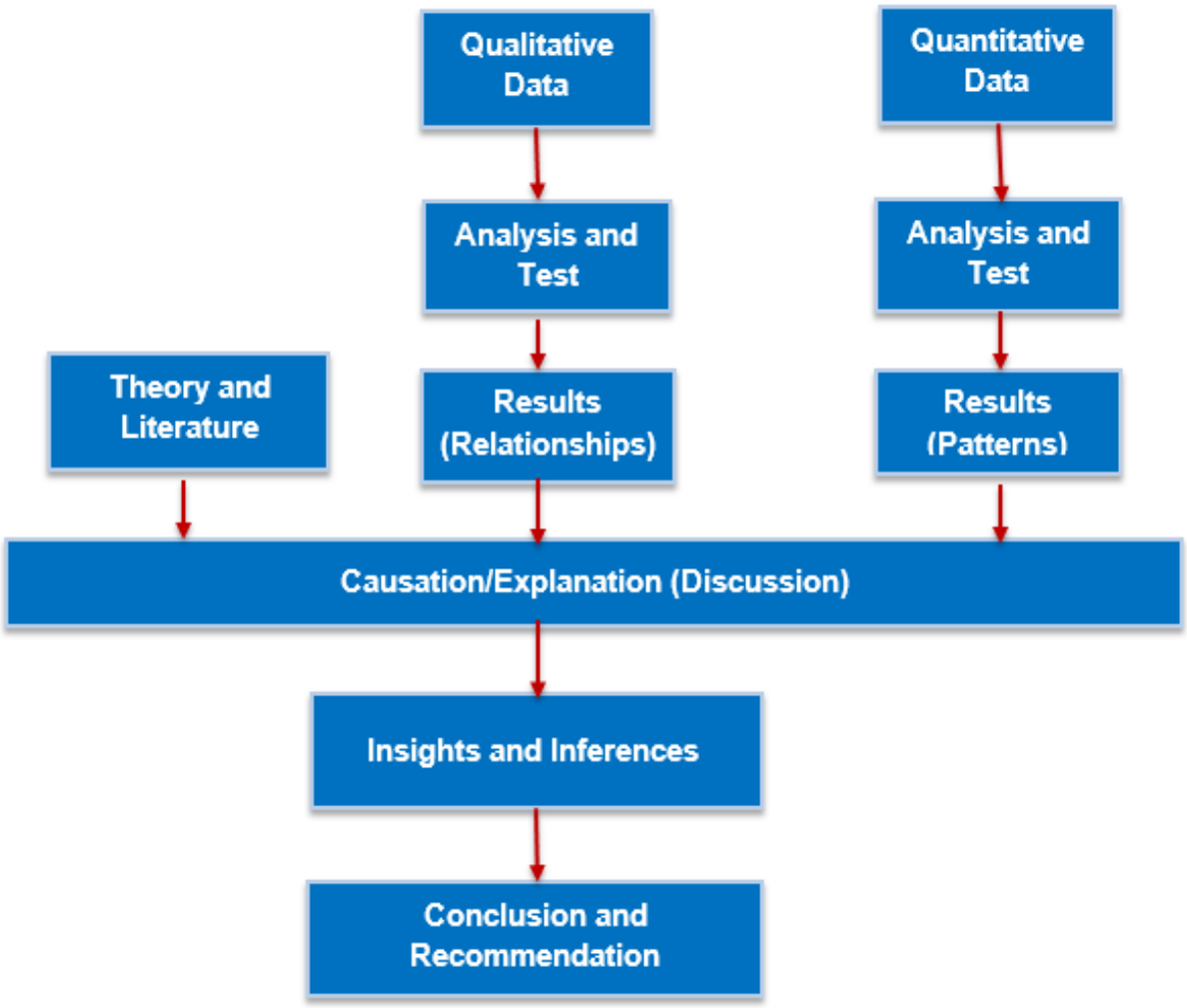


Figure 4.10 Triangulation of qualitative and quantitative data, (Source: Amaratunga et al., 2002)

4.13. Reliability

To decrease the possibility of achieving incorrect results as well as enhancing the credibility of the result findings, it is necessary to pay more attention to validity and reliability of the research instruments (Saunders et al., 2016). Reliability relates to how consistent the findings from the study are, such that if a similar study was to be conducted under similar circumstances, the findings of the current study would be confirmed. This is referred to by Sekaran (2003) as the 'goodness' of a measure. Pilot studies help to establish the reliability of research instruments by minimising biases. Cronbach's alpha coefficient is a reasonable indicator of the internal consistency of instruments that do not have right or wrong marking schemes; thus, it can be used for questionnaires using scales such as ratings (Black, 1999). Sun. et al. (2007) states that Cronbach's alpha coefficient should fall within a range of 0.70 to 1.00 in order to be confident about the internal consistency of the study. In other words, if the values of Cronbach's alpha are above the accepted lower limit of 0.7, this indicates that the

scales used in the instrument are reliable. Likewise, George and Mallery (2003) provide different values of Cronbach's alpha test as illustrated in Table 4.7.

Table 4.7 Cronbach's alpha value adopted from (George & Mallery, 2003)

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

In this study, Cronbach's alpha coefficient was applied in order to estimate the internal consistency of reliability of the questionnaire. According to the Table 4.8, it can be seen that the values of Cronbach's Alpha coefficient ranged from 0.70 to 0.87 for each dimension of the research study. Moreover, the value of Cronbach's Alpha coefficient for the total of all the dimensions of the questionnaire was 0.91. This indicates the internal consistency and harmony of the questions of the questionnaire and with the statistical analysis results in terms of objectivity.

Table 4.8 Statistics for Reliability (Cronbach's Alpha coefficient)

Questionnaire Major dimensions	Number of items	Cronbach's Alpha
Top management commitment	3	0.87
Continuous improvement	3	0.86
Process management	3	0.83
Customer focus	3	0.83
Training and development	3	0 .79
Quality culture	3	0.71
Policy and strategy	3	0.80
Employee empowerment	3	0.84
Communication	3	0.75
Poor understanding and insufficient knowledge of TQM	3	0.74
Resistance to change	3	0.78
Delegation of authority and responsibility	3	0.70
Lack of teamwork	3	0.82
Lack of TQM experts	3	0.81

Bureaucratic Management	3	0.79
Poor ineffective training and development	3	0.76
Improving customer satisfaction	3	0.82
Improving employee satisfaction	3	0.78
Eliminating waste and defects	3	0.78
Improving financial performance	3	0.83
Decreasing company's impact on the environment	3	0.87
Total	**63**	**0.91**

With regard to the reliability of the interview findings, it has already been noted that the pilot study led to the refinement of the instrument by the removal of ambiguities or biases in the way that questions were framed. Furthermore, the researcher established rapport with the interviewees so that they felt confident about honest disclosure without fear of consequences as assurances of confidentiality had been given. Additionally, as the interviews were semi-structured, the researcher allowed the participants ample scope to talk and elaborate and was aware of avoiding any indications of bias or of being judgmental especially by non-verbal cues.

4.14. Validity

Prior to data analysis, the research instrument was assessed for its reliability as well as validity. According to Saunders et al. (2016), *"Validity is the extent to which data collection method or methods accurately measure what they were intended to measure*" Yin (2014) classified validity as being either internal or external. Internal validity refers to the correctness of establishing causal relationships between variables. This is accomplished by a statistical measure. External validity refers to the generalisability of the findings to the overall population and beyond (Creswell, 2014).

To meet validity requirements and raise the level of the data collection method in this research, the researcher followed many procedures.

1. Many questions which were asked in the semi-structured interviews were asked or re-explained in questionnaires to ensure that the findings resulting from the semi-structured interviews would be validated by the findings from the questionnaires.
2. The pilot study for the questionnaire and semi-structured interviews were conducted in four stages: researcher's supervisor, colleagues, academic experts and target company. Following the completion of the pilot study, the participants' feedback and the opinions

were used to modify the questions. The comments of the participants were considered very helpful and were addressed.

3. Regarding conducting a semi-structured interview the researcher built a trusting relationship with the interviewees by making a personal visit to their offices to explain the importance and benefit of this research to their company. Also, the researcher allowed them to choose the time and place for conducting the interviews and confirmed the confidentiality of the collected data.
4. As most of the questionnaires were distributed by the researcher in person, it was possible to clarify any misunderstandings relating to the questions and how they should be answered.

4.15. Validation of the Framework

The final framework, as put forward in Figure 7.3, was validated by a methodological validation context. The researcher prepared and sent an invitation letter (see Appendix C) to four key persons to participate in the validation process of the revised framework via semi-structured telephone interviews. Those key persons included three external academics who have a broad knowledge and expertise in TQM in addition to one senior manager who belongs to the studied company.

4.16. Research Design and Process

This section is concerned with the design and process of the research through which a good understanding of the research journey will be elaborated. According to Creswell (2014), research design is the framework that is presented by the researcher for collecting and analysing data. In addition, the scope of the examination should be explicitly addressed and the process should be clearly indicated in the suggested framework. Thus, this research is organised in a way that allows the reader to easily follow the process. This is demonstrated in Figure 4.11, which reveals an overview of the research design and process.

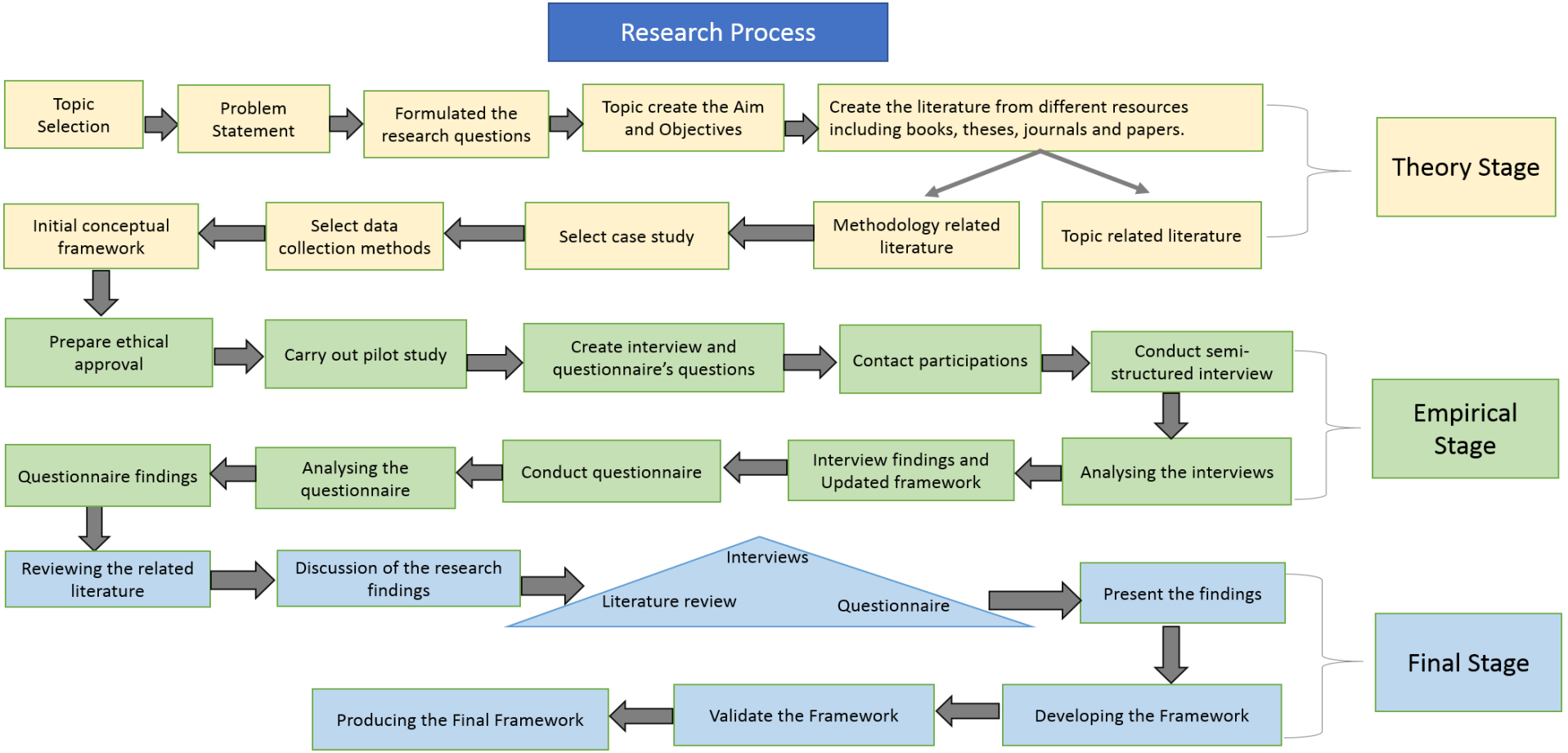


Figure 4.11 - Research Design and Process

4.17. Chapter Summary

This chapter presented and justified the research methodology in detail. It began by discussing the research methodology model that has been selected for this study which includes major issues. These issues comprise research philosophy, research approaches, research strategy, research choice and time horizon in addition to research techniques and procedures. The rationale for selecting the case study was also explained and the type of sampling used in this research has been clarified.

The data collection techniques, which included semi-structured interviews and questionnaire survey, have been discussed in detail in addition to the type of sampling used in this research. Also, this chapter highlighted the implementation of triangulation approach as well as the acceptability of the research design in terms of reliability and validity. Furthermore, validation of the framework and research design and process have been clarified. The next chapter will present the analysis the qualitative data analysis and how it will contribute to the development of the conceptual framework of this study.

CHAPTER FIVE

QUALITATIVE DATA ANALYSIS

Chapter 5: Qualitative Data Analysis

5.1. Introduction

The aim of this chapter is to analyse and discuss the qualitative results from the face to face semi-structured interviews that were conducted in one of the most significant oil companies in Iraq, known as the Iraqi Drilling Company. According to Saunders et al. (2009), the main purpose of conducting qualitative interviews is to understand and obtain a clear picture about a specific phenomenon being investigated.

Bearing this in mind, permission was granted by the General Director of the Iraqi Drilling Company to conduct the interviews once the purpose of the research had been fully explained to him by the researcher. Ten semi-structured interviews were conducted with managers who occupied prominent positions in the company to gain perspectives on certain issues that would have been difficult to extract through a quantitative approach.

The chapter is structured as follows:

1. Background information about the case study is given, followed by an official organisational structure and quality management system, already implemented in the company.
2. Findings and discussion of the data analysis are explained.
3. An updated conceptual framework is illustrated based on the findings.
4. Summary of the findings is outlined.

5.2. Background Information related to the Case Study

As mentioned previously, the study was conducted in one of the most important oil companies in Iraq, the Iraqi Drilling Company. IDC was established in 1990 and is associated with the Ministry of Oil. The main goal of establishing IDC was to incorporate all activities related to the management and implementation of drilling, reclamation and the development of oil wells in several oil fields exclusively in one national company. In fact, before 1990, all drilling operations were conducted by drilling departments in each Iraqi Oil region, represented by the Basra Oil Company, Midland Oil Company, and North Oil Company. Although the IDC is linked directly with the Iraqi Ministry of Oil, this company is different from the rest of the oil sector companies as its working principle is based on self-finance through gaining and signing contracts with oil companies working in Iraq. The company's

operations cover the entire Iraqi territory, through three main headquarters based in southern, central and northern Iraq. The total number of employees is approximately 9,200.

In 2009, many international oil companies entered Iraq, after the launch of what is known as oil licensing rounds, which attracted different oil companies such as BP, Shell, Lukoil, Petronas, Total, ENI, Exon and Mobil. IDC has been able to sign many contracts with these companies in the field of drilling and the reclamation of oil wells, despite the existence of competition with other international companies operating in Iraq under the umbrella of what is known as licensing rounds service contracts such as Schlumberger, Halliburton and Tebic. Thus, there are two types of customers that IDC deals with. The first one is Iraqi oil companies, while the second customer is international oil companies working in Iraq.

The quality management or Quality Health, Safety and Environment (QHSE) department is deemed to be one of the important departments in IDC, especially as the company's policy is to complete its activities in accordance with the ISO international standards. In 2012, the company achieved a remarkable objective by acquiring an ISO9001: 2008, as the first Iraqi company in the oil sector to achieve this certificate. Moreover, in early 2016, the company implemented and developed integrated management systems, which are known as QHSE and meet the requirements of the Quality ISO9001: 2008, Health and Safety 18001:1999, and Environment 14001:2004 standards, aimed at satisfying the needs and requirements of its customers as well as protecting the environment.

The quality management of the company concentrates on many activities such as analysing data and determining the areas of weaknesses and competence in the internal environment of the company. As well this, it is also involved in analysing the data and determining the availability of opportunities and risk zones in the external environment of the company. Additionally, its tasks include observing the outcomes of corrective and protective actions proposed by the departments or as a result, checking out and following up on the outcomes of customer satisfaction in terms of company performance. These activities result in proposing corrective procedures required to keep and improve the applied system and improve the validity of utilising the available resources in the company. Furthermore, it involves conducting benchmarking with companies which have more advanced QHSE, in order to assess and improve the company's system. Even though IDC does not classify itself as a TQM company, its philosophy is derived from the adoption and implementation of the ISO9001: 2008 effectively. Moreover, despite their different objectives, both the TQM and ISO have

some common elements, which is why many researchers such as Skrabec (1999), Sun (2000) and Escanciano et al. (2001) consider an ISO as the first step towards achieving TQM. The organisational structure of the company in presented in Figure 5.1.

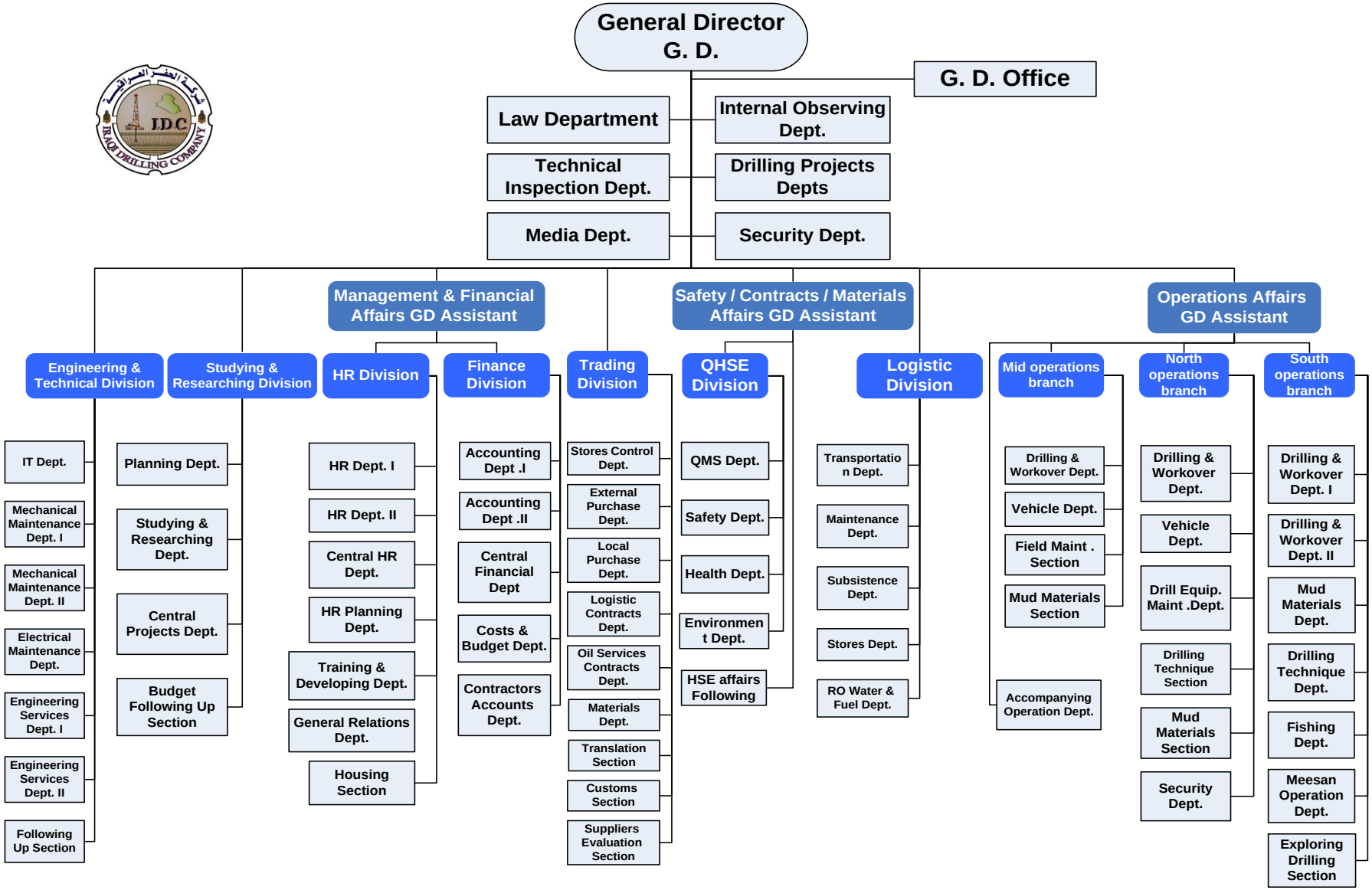


Figure 5.1 The Organisational Structure of IDC

5.2.1. Quality Management System of Iraqi Drilling Company

As mentioned previously, the IDC follows a QHSE manual, which is integrated to meet the ISO9001: 2008 requirements. The main purpose of the QHSE is to document the company's policy and guidelines for employees and other interested parties whose actions affect product quality, health and safety, and the environment during their day-to-day activities. It also includes the responsibility and authority of all personnel who manage, perform, and verify work, that affects quality, health and safety and the environment and have a responsibility for implementing the processes that have been defined and documented.

According to IDC, there are six mandatory procedures, which can be summarised as follows:

1. Document and Data Control Procedure

This procedure describes the way in which IDC's required documents are recorded and stored.

2. Control of Record Procedure

This procedure is used to establish and keep records for evidence of ISO requirement conformity.

3. Management Review

This procedure is used to safeguard the suitable and effective continuation of the QHSE, regarding the ISO standards and company's policies and objectives. It is applied to all the management review activities.

4. Internal Audit Procedure

This procedure is used to plan and carry out set independent internal audits at planned times and dates, in order to validate compliance of QHSE activities.

5. Control of Non-conforming processes

This procedure is used to make sure that any processes or services not conforming to specified requirements are recognised and prohibited.

6. Corrective and Preventive Action Procedure

This procedure is used to outline IDC processes required to stop nonconformities happening, whilst preventing recurrence and determining the actions required to eradicate potential NC before it occurs.

5.3. Qualitative Data Analysis and Findings

The major purpose of conducting qualitative interviews as described by Saunders et al., (2016) is to understand and gain insight into a particular phenomenon being investigated. Therefore, in this study interviews were conducted in order to gain opinions on issues that could not be properly elicited purely through a quantitative method such as questionnaire. As mentioned in section 4.8.1, the researcher conducted semi-structured interviewees with 10 managers who occupied high-level positions in the case study. The interviewees have different levels of experience and work in different departments, hence they were expected to be able to provide a breadth and depth of information and enhance the interviews' data richness and reliability in terms of range of information and level of detail. The list of the interviewees' information is presented in Table 5.1.

Table 5.1 - Information of the Interviewees

Interviewee Code	Position	Experience years
CP1	Manager	34
CP2	Manager	28
CP3	Manager	24
CP4	Manager	27
CP5	Manager	32
CP6	Manager	24
CP7	Manager	18
CP8	Manager	18
CP9	Manager	20
CP10	Manager	22

The responses to semi-structured interviews were combined to reflect the themes and sub-themes emerging from the data analysis, about each issue. A content analysis approach was adopted to the analysis, along with utilising the NVIVO11 programme, which has been used to facilitate the analysis techniques and to give an accurate analysis of the interviewees' responses.

The data analysis began with the classification of data related to the research study's objectives. Therefore, there were five main themes for the following subsections under which the results of the semi-structured interviews were analysed and discussed as follows: the extent of TQM awareness (objective two), identification of TQM implementation factors and verification of proposed TQM key factors (objective three), the barriers that hindered TQM implementation (objective four) and the benefits of TQM implementation (objective five).

Figure 5.2 presents the theme structure that has been implemented to collect and analyse transcripts from the semi-structured interviews. Subsequently, sub-themes were extracted from collected data on each main theme. Therefore, the following sections focus on the interviewees' answers against the main and sub-main themes.

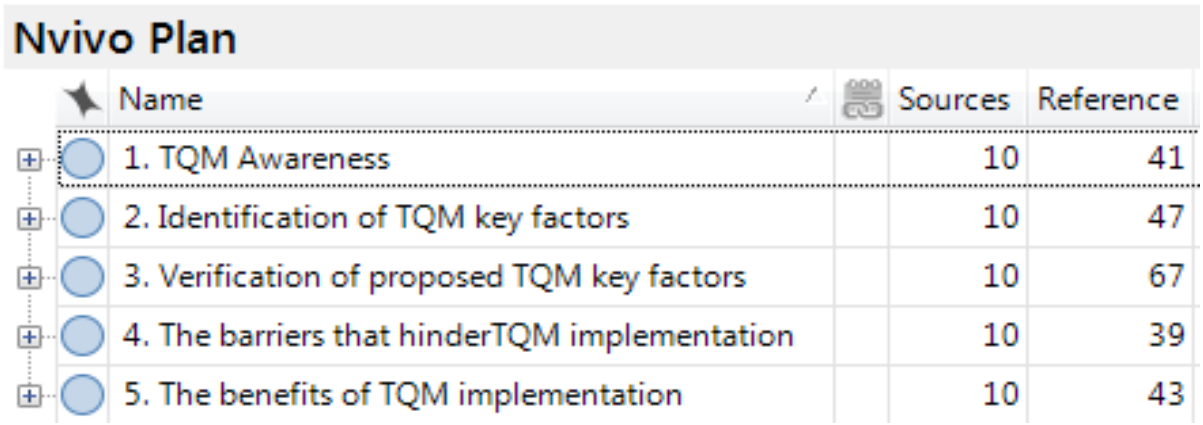


Figure 5.2 The Main Theme Structure from the NVIVO Programme

5.3.1. TQM Awareness

This section deals with TQM awareness among the interviewees. Under this main theme, there were four sub-theme nodes as shown in Figure 5.3. The sub-themes of TQM awareness will be discussed in the following sections.

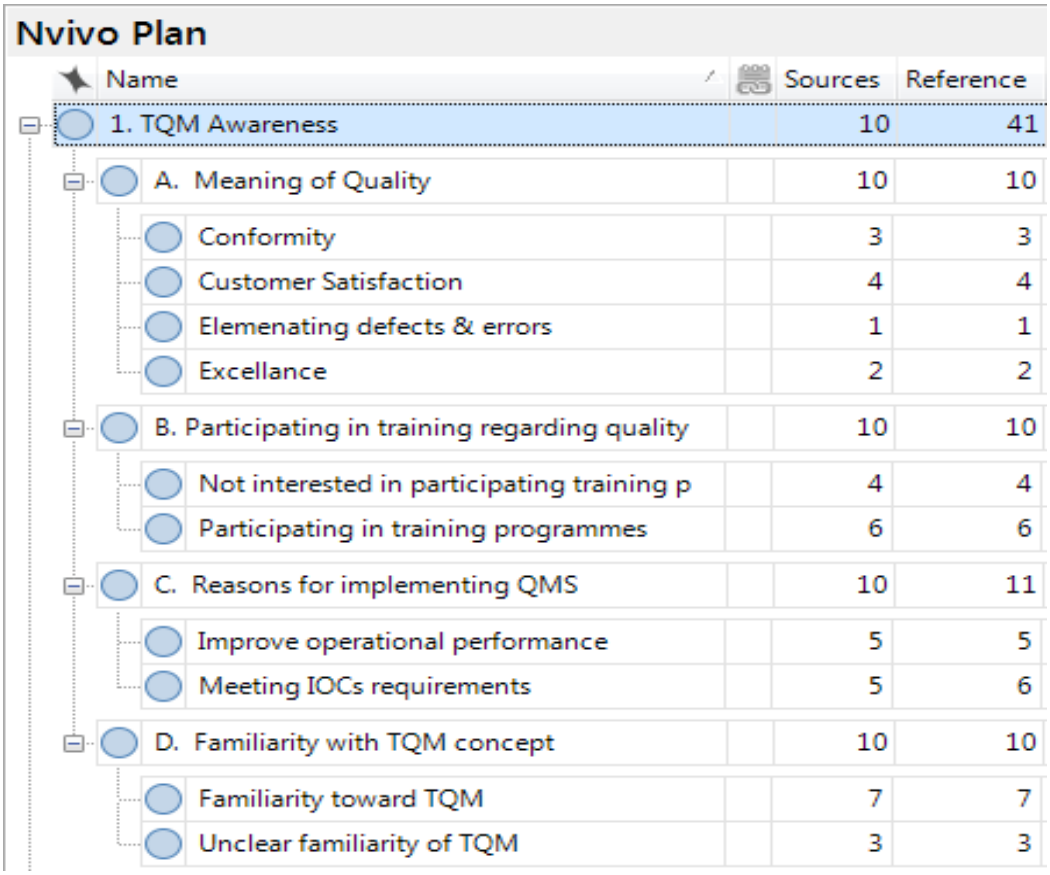


Figure 5.3 Nodes for TQM Awareness

5.3.1.1. Meaning of Quality

The question posed to the interviewees was: "Based on your work activity, what does the word 'quality' mean to you?"

The interviewee's responses mainly covered four points, which were: satisfying customers, conformity with standards, the degree of excellence and defect elimination. Thus, these four points represented what the word 'quality' meant to the interviewees. Notably, four interviewees declared that quality meant satisfying customers. In more detail, interviewee CP1 highlighted job experience and mentioned that, *"Based on my job experience I can tell you that quality is the effective tool used by the company to satisfy its customers. In other words, by achieving customer satisfaction, this means that the company has conducted its activities according to quality concept".* In the same context, another respondent CP4 indicates that, *"Quality can be defined as all activities related to improving the company's performance in general and satisfying internal and external beneficiaries, in other words satisfying company's employees and customers".*

Likewise, interviewee CP8 stated that, *"Quality means how the company can achieve its customer satisfaction as it represents the cornerstone towards achieving the company's goals especially increasing revenue".*

While, three of the interviewees mentioned that quality was conformity with standards or conformity with what was planned. For instance, one interviewee CP5 stated that, *"Quality refers to conformity with standards, in other words, it means accomplishing all work and tasks in a way that conforms to established standards".*

In a similar vein, CP6 revealed that, *"I can say, quality means conformity of what has been achieved with what is planned to accomplish the work without waste in resources".*

Two of the interviewees saw quality in terms of a degree of excellence, as, for example CP7 who stated that, *"Quality means the degree of excellence that is achieved by doing work activities in the most appropriate way".*

Nevertheless, one interviewee, CP10, defined quality as eliminating the defects and described how doing so would add value to the company by reducing cost, which consequently led to an enhancement of the company's competitiveness. He reported that, *"Quality means to eliminate defects and mistakes in all aspects of the company's activities and operations. In other words, by the elimination or reduction of defects and mistakes, this will contribute to an increase in company profits and a reduction in the costs, which consequently leads to an increase in the company's competitiveness and profitability*."

In summary, the above results show that there were similarities and also different perspectives and points of view regarding the meaning of quality among the interviewees. However, the opinions of all the interviewees were focused on the results of achieving quality, rather than the process that was required to achieve it.

5.3.1.2. Participation in Training Regarding Quality Management Initiatives

The purpose of this section is to identify whether the interviewees had participated in training programmes related to quality management. The question posed to the interviewees was: *"Have you participated in training programmes or courses related to quality management initiatives?"*

If yes, give details.

If no, give reasons.

The interviewees' responses were varied, consisting of participation in training programmes and those who were not interested in taking part. In the case of employees who participated in training programmes related to quality management, some interviewees mentioned that they had attended training courses based on a quality management system (QMS). In addition to this, they also participated in other specific courses that were related to various aspects of quality management. In this context, interviewee CP5 specified that, *"Since the company started applying a QMS in 2012, I have participated in several training courses and workshops regarding different quality aspects. Most of this training focused on the application of ISO9001, documentation, internal auditing, and health, safety and the environment (HSE). Moreover, I have had the opportunity to participate in some other specific training courses related to quality management initiatives like Management Integrated Systems (MIS) and statistical techniques in quality. These specific courses were organised and took place outside the company".*

While interviewee CP6 indicated that training courses were focused mainly on basic issues of quality management in the company, stating:

"Yes, I have participated in some training courses and sessions related to quality management. Most of this training focused on basic or preliminary issues related to quality management systems, such as the principles of ISO9001 or the advantages of internal auditing. In addition to the critical role of health, safety and environment HSE particularly in the work field".

With respect to the interviewees who were not interested in training programmes, some of these interviewees attributed this fact to there being insufficient time due to responsibilities and the nature of their work. Others suggested that these courses were perceived as ineffective and did not enhance their existing knowledge. For instance, interviewee CP3 suggested that

these programmes or courses were traditional and would not increase knowledge by asserting that, *"The last training course I attended was in 2012 and since that time I have not participated in any training course due to two reasons; First, I am very busy because of the nature of my job and I follow a lot of things, hence time is very valuable for me, so I have no time to spend on attending training. Second and most importantly, most of the training courses organised by our company deal with minor issues related to quality management systems such as documentation, auditing and control of record procedures. In fact, these topics are followed and implemented by our own department. Therefore, for me, there is no point in attending such training courses because I think they will not enrich my experience effectively in relation to quality management".*

Interestingly, interviewee CP9 revealed that instead of quality management training course he participated in seminars that related to the key issues of ISO9001: 2008 in the oil and gas companies, stating: *"All the training courses that I have participated in, were in other areas and not related to quality management at all. However, I have attended some seminars concerning the key issues of ISO9001: 2008 in the oil and gas companies".*

From the interviewees' responses, it is clear that the majority have participated in training courses. However, these training courses have mostly focused on issues related to a QMS that has already been implemented in the company.

5.3.1.3. Reasons for Implementing Quality Management Systems

The purpose of this section is to ascertain interviewee opinions about the reasons that have driven the company to implement quality management systems.

The question posed to the interviewees was: *"What are the main reasons for implementing a quality management system in your company?"*

The interviewees stated two main reasons for implementing a quality management system in the company, which were related to dealing with multinational oil companies and to improving the company's performance. Only one interviewee, CP5, suggested both reasons in stating, *"There are two main reasons that have made the company adopt and implement TQM. The first reason is that the company has a firm conviction that quality is the key factor to achieve success. Thus, adopting and implementing quality management systems like ISO9001, will contribute to improving the company's practices and performance, as well as making the company work according to a quality-oriented approach, rather than a functionally-oriented approach".*

Regarding the second reason for adopting and implementing quality management, interviewee CP5 explained that implementing a quality management system will make the company to match with the essential requirements of the international oil companies in the Iraq, thus enable the company to sign contract with these companies, stating that:

"The second important reason is that implementing a quality system in the company will pave the way for multinational oil companies in Iraq to hire IDC services. Having a quality management system certificate is one of the essential requirements, to sign a contract with multinational oil companies in Iraq like BP and Shell".

In the case of improving the company's performance, interviewee CP10 explained and clarified the benefits that the company had gained via QMS implementation particularly in terms of operational performance and improving activities related to technical and administration in addition to reducing cost and waste by saying:

"*The Company has adopted and implemented a quality management system because it seeks to improve its performance, especially operational performance. I do believe that the performance improvement will be achieved through improving and enhancing the technical and administrative efficiency for all the company's staff, while reducing cost and time as well as the elimination of waste and interruption".*

Interviewee CP3 agreed with this reason adding that QMS has a positive effect on company's performance especially with respect to preventing defects, errors and interruption as well as reducing cost, by explaining, *"Applying QMS in the company will help the company to follow well-documented procedures and ensure prevention of defects, errors and interruption, as well as reducing cost. Therefore, it helps efficiently towards improving the company's performance".*

Based on the other interviewee's points of view, dealing with multinational oil companies was another main reason for the adoption and implementation of a QMS in the company. Interviewee CP1 clarified that, through a successful implementation of QMS like ISO9001, the company will grant a certificate which represent an essential requirement for the IOCs to deal with IDC, stating:

"The significant reason for adopting and implementing a quality management system in IDC is because, as a contractor company in drilling, reclamation and developing oil wells, the company seeks to deal with international oil companies working in Iraq through hiring its

services. Therefore, successful implementation of the quality system will grant the company a certificate like ISO9001.This certificate represents a key requirement for international oil companies in Iraq to deal with IDC. In other words, having a quality management system certificate represents a passport for IDC to deal with international oil companies like Shell, BP, Eni… etc.".

Furthermore, interviewee CP7 agreed with the point of view of meeting the requirements of international oil companies in Iraq, indicated that, applying QMS will contribute to enhance the competitive position of the company against its competitors of IOCs, by asserting:

"Implementing a quality management system will enhance the company's competitiveness positioning against international companies, especially technical service contractors (TSC) that work in the same field in Iraq".

Based on these responses, it can be concluded that the main reasons behind implementing a QMS in the company was that it improved a company's performance and met customer's requirements.

5.3.1.4. Familiarity with the TQM Concept

The purpose of this section was to determine to what extent the interviewees had a clear picture of the concept of TQM. The question posed to the interviewees was; *"To what extent are you familiar with the TQM concept?"*

A minority of interviewees, three respondents, mentioned that they did not have a clear or precise idea of what TQM was about. Nevertheless, most of them stated that they could explain the concept of TQM according to their experiences and background. So, many of the interviewees were familiar with the TQM concept.

In the case of unclear familiarity with the TQM concept, interviewee CP7 stated that although I have inaccurate picture about TQM however it is like an umbrella of all QMSs like ISO900, by stating: *"To be honest I have an imprecise idea regarding TQM, nevertheless, I can conclude that TQM is an umbrella of all quality management systems such as ISO9001".*

Likewise, interviewee CP6 declared that TQM is system that is geared towards improving company's performance. He pointed out that: *"Although, I don't have a complete picture regarding TQM, based on my experience, TQM means having systems that lead to improving company's performance through specific process and procedures".*

In the case of familiarity with the TQM concept, interviewee CP2 pointed out to the idea that TQM is an advanced quality management system, by asserting that: *"TQM is sophisticated quality management system compared with other quality systems such as ISO9001"*.

Interviewee CP5 described the TQM concept as a management approach that emphasis on integrated human and non-human resources in the company, by stating that:

"Based on my knowledge TQM is a management approach that focuses on all integrated human and non-human resources in the company, to facilitate improving the entire performance".

Interviewee CP10 agreed with this point and shed light on customer satisfaction and continuous improvement, by explaining that: *"TQM is a sophisticated management system that focuses on two axes, first customer satisfaction, which represents one of the company's strategic goals. The second is continuous improvement, which is considered as an essential part of any quality management system".*

To summarise these responses, most of the interviewees demonstrated that the idea behind TQM was clear and understood by them and the main reason was attributed to their background and experiences in the field.

5.3.2. The Required Factors of TQM Implementation

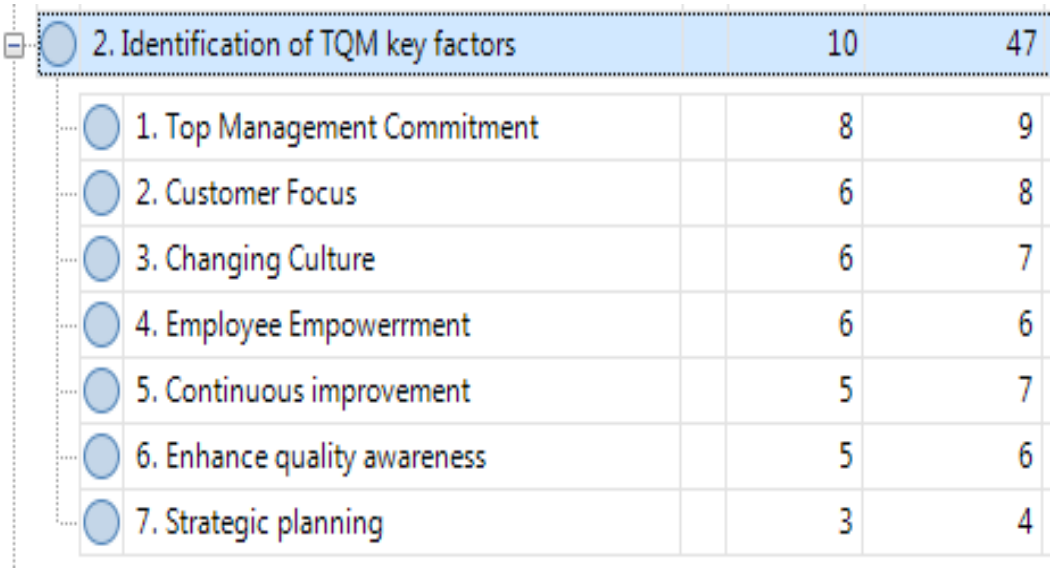
Under this section, two main subsections that are related to the second objective will be discussed. Firstly, the identification of key factors required to facilitate TQM implementation were collected from interviewees' answers. The main reason for this was to give the interviewees freedom to identify these factors, which would reflect their actual needs and understanding. Secondly, the researcher aimed to verify proposed TQM key factors based on the literature review. The main reason for this was to unearth the interviewees' opinions, knowledge and perceptions regarding the proposed key factors and to recognise the extent of the impact of each factor on the implementation of TQM.

5.3.2.1. The Identification of TQM Key Factors

The purpose of this section is to identify the TQM operation factors required to facilitate TQM implementation based on the interviewee's opinions and knowledge. Under this main theme, there were seven sub-themes, as shown in Figure 5.4 below.

The question posed to the interviewees was: *"If your company is seeking to adopt and implement TQM, what are the key factors required for successful TQM implementation?"*

The interviewee's answers covered seven key points: Top Management Commitment, Customer Focus, Changing Culture, Employee Empowerment, Continuous Improvement, Enhance Quality Awareness and Strategic Planning.



2. Identification of TQM key factors	10	47
1. Top Management Commitment	8	9
2. Customer Focus	6	8
3. Changing Culture	6	7
4. Employee Empowerrment	6	6
5. Continuous improvement	5	7
6. Enhance quality awareness	5	6
7. Strategic planning	3	4

Figure 5.4 Nodes for the Identification of TQM Implementation Factors

5.3.2.1.1. Top Management Commitment

Top management commitment is listed as a significant requirement for the adoption and implementation of TQM, by most of the interviewees. According to interviewee CP10, commitment of top management was one of the main requirements for achieving successful TQM implementation. CP10 explained:

"I do believe that top management commitment is the main pillar of any excellence and quality implementation initiatives. It is a critical requirement to achieving successful TQM implementation".

Likewise, interviewee CP9 confirmed that top management support is essential for applying any quality management initiatives such TQM, asserting that:

"No doubt without proper support from top management, it is impossible to go further regarding implementing any new system or quality initiative such as TQM implementation".

While, interviewee CP5 ranked the TMC factor amongst others, declaring that: *"The first requirement of implementing TQM is that top management should have a firm conviction regarding the advantages of applying TQM in the company".*

Interviewee CP8 added that the responsibility of support should come firstly from the Ministry of Oil, stating that:

"The commitment of top management to start by convincing the ministry of oil about the feasibility and usefulness of implementing TQM in the company as the company links directly with Iraqi ministry of oil".

In summary, there was broad agreement among the respondents that TMC was considered as the starting/founding point of successful TQM implementation. This is attributed to the fact that top management had the authority and responsibility to decide on the adoption and implementation of any quality initiatives such as TQM.

5.3.2.1.2. Customer Focus

Another significant factor has emerged from the semi-structured interviews, when focusing on the customers of the companies. Interviewees CP5 and CP4 both clarified that, based on the quality management system ISO9001-2008 already being implemented in the company, customer focus represented the focal point of all the company's activities. In this regard, CP5 stated that: *"Based on QMS ISO9001-2008, identifying customer's requirements is considered as a prominent issue and takes high priority in our company. Thus, when implementing any quality initiative like TQM the company should consider customer satisfaction as an essential factor to successful implementation".*

In the same context, interviewee CP1 placed emphasis on building and sustaing good relationship with company's customer as a method to achieve success, by stating that: *"The Company considers its customers as a significant factor for its success. Therefore, our company works hard to sustain a good relationship with their customers by conducting regular meetings, in addition to direct communication channels. So that any misunderstanding or problems can be overcome quickly and effectively".*

Additionally, interviewee CP10 stressed the key role that the customer played regarding evaluating a company's success, by saying that: *"A customer represents an indicator for the company regarding evaluating its success. Thus, it is considered as one of the critical factors in term of adopting and implementing any quality initiative such as TQM".*

The above-mentioned responses have revealed that customer focus was considered to be one of the required factors for achieving successful TQM implementation in the company. This was mainly because the company had already implemented QMS 9001, which considers the company's customer as one of the primary points that the company should consider when implementing all its activities. Moreover, the company's customers represent one of the main indicators in terms of achieving the company's objectives, particularly an increase in its revenue.

5.3.2.1.3. Cultural Change

In the case of changing the culture of the organisation, interviewee CP5 revealed that changing a company's organisational culture to that of a TQM culture is a significant requirement for successful TQM implementation, stating:

"Although, it is not easy to change several kinds of issues, which form together a company's culture, such as values, habits, beliefs, practices and how working staff at various levels interact with their working environment. Changing a company's culture is a significant requirement to achieve successful TQM implementation".

Similarly, CP10 declared that: *"I think changing traditional management styles to become quality based styles is an essential requirement for TQM implementation".*

Meanwhile, interviewee CP2 shed some light on resistance to change as he was of the view that introducing new ways of doing things in organisations usually meets stiff resistance from both managers and workers however, for it to be successful there must be strategies in place to increase awareness and benefits of new approach of doing things such as TQM, by explaining that:

"From my perspective, adopting and implementing a new system in any company will face resistance by some managements or groups. Therefore, with respect to TQM, the company should take all necessary procedures to confront this resistance by promoting and enhancing TQM culture. Such procedures like organising plenty of sessions and seminars, should involve working staff from different managerial levels to clarify the advantages of applying TQM in the company. Thus, these kinds of procedures will help the company towards increasing its awareness regarding TQM as well as to overcome or mitigate resistance to change".

Based on the above discussion, management should be aware of a company's culture because it is associated with employee behaviour, values and practices. Therefore, changing a

company's culture to that of a TQM culture, was one of the fundamental factors identified for implementing TQM.

5.3.2.1.4. Employee Empowerment

In the case of employee empowerment, interviewee CP5 highlighted the positive advantages of employee empowerment, particularly in respect to developing shared delegated authority and responsibility, by saying: *"As TQM aims to involve employees in work activities and decision-making, employee empowerment is critical to developing shared and delegated authorities and job responsibilities. Thus, each employee is more objective and purposeful to his individual rule and/or through team-work".*

In the same context, interviewee CP4 pointed out to the impact of employee empowerment on achieving the best performance, by stating that: *"One of the main essences of quality initiatives such as TQM, is the empowerment of employees and involvement in the decision-making process because it increases confidence, enthusiasm and motivates them to achieve the best performance".*

In addition, interviewee CP8 stressed that the success of employee empowerment and participation depended on the degree of experience and knowledge of the employees in their work, explaining that:

"Empowerment is one of the significant factors for the implementation of any quality initiative. However, to achieve the best results, the management should fully trust that the employees have sufficient experience and knowledge to participate in some parts of the decision-making process. Otherwise, managers, especially in high positions, are unlikely to find it easy to delegate their authorities and responsibilities to other managers or employees".

Based on these responses, it can be concluded that one of the main aspects of the empowerment of company staff was perceived to be that of delegation of authority and responsibility from the top management levels to the lower levels. Additionally, encouraging and motivating staff to participate in some parts of the decision-making process can be considered to be an important aspect of successful TQM implementation according to the views of the respondents.

5.3.2.1.5. Continuous Improvement

In relation to continuous improvement as an essential factor of TQM implementation, two interviewees, CP2 and CP9, indicated that there was a relationship between QMS ISO9001 and TQM with respect to continuous improvement. For instance, CP2 stated that, "I *know very well that continuous improvement is the cornerstone of the quality system ISO9001, which is applied in our company. Having said that, it is also* significant *for other quality initiatives like TQM".*

In the same regard, another point of view shared by interviewee CP10 who emphasised on the importance of continuous improvement as a process to achieve the sustainable success of TQM, by saying:

"Continuous improvement is the core of any quality system such as QMS ISO9001. Adding, "The successful implementation of quality initiatives like TQM should rely on the continuous improvement process of any company's activities, as it is based on sustainability in doing things".

Moreover, CP4 pointed to the vital role of continuous improvement in terms of corrective and preventive actions, he stated that:

"Continuous improvement does not only concentrate on the best aspects of conducting jobs but also on the corrective and preventive action procedures in the company. Thus, I do believe it represents a fundamental factor of TQM implementation".

To sum up, the interviewees have highlighted that continuous improvement was considered to be one of the central factors required for implementing TQM effectively. This opinion was mainly attributed to their own experiences regarding applying QMS in the company.

5.3.2.1.6. Enhancement of TQM Awareness

Enhancing TQM awareness was another factor that emerged from the data analysis of the interviews. Interviewee CP8, stated that the company should concentrate on improving of TQM awareness and promoting its advantages for all company's staff, by stating that:

"The company should be promoting and disseminating an intensive awareness policy that aims to illustrate the advantages of implementing TQM in the company".

Interviewee CP2 combined increasing TQM awareness with training by reporting that:

"Awareness of TQM can be increased through several activities such as training programmes, workshops, sessions, and symposiums, either inside or outside the company".

In the same context, interviewee CP9 asserted that enhancing awareness and increasing knowledge about the advantages of TQM via training programmes considered to be the first step towards effective implementation, stating that:

"The first effective implementation of any quality initiatives or programmes like TQM should start by enhancing awareness and perception as well as increasing knowledge about the benefits of TQM implementation. This should be done by organizing extensive training programmes and workshops to achieve effective results. Moreover, these actions should cover all company's staff and not be restricted to a certain organisational level".

Therefore, it can be concluded that enhancing and increasing TQM awareness of all company staff through the appliance of an effective training and development programme was viewed as supporting and contributing to achieving successful TQM implementation.

5.3.2.1.7. Strategic Planning

Interviewees CP10 & CP4 discussed planning as a process, to prioritise and focus the resources and efforts of the company, as well as the implementation of the plan. InterviewCP10 emphasised the importance of strategic planning for predicting and anticipating changes in the business environment and the position the company to respond, explaining:

"If the company is seeking a top-ranked marketplace position that differentiates from others strategic planning must take place. To regularly analyse, evaluate and allocate all necessary resources and determine the best approach to meet customer needs and exceed the likely results". He also added that: *"the company's strategy must make quality a top priority on various levels, for everyone in the company from top managers to all levels".*

While, interviewee CP4 highlighted strategic planning and effective practices to achieve the best performance, by stating that: *"Strategic planning and effective policies and procedures of the implementation of a quality initiative like TQM will enhance the ability to adapt to change by securing best practices and maintaining competitive performance".*

Based on these responses, strategic planning in addition to effective policies and procedures were seen as necessary to be considered for successful implementation of TQM.

In conclusion, the interviewees have identified seven factors considered to be key aspects required for TQM implementation. These factors will be compared and discussed with the findings in the next section along with the required features for TQM implementation.

5.3.2.2. Verification of the Proposed Key Factors for TQM

In the previous section 5.3.2.1, the interviewees identified seven key factors required for TQM implementation. In this section, the researcher will verify the proposed TQM key factors identified and collected from the literature review.

The question posed to the interviewees was:

"Which of the following factors are essential for TQM implementation and why? (Choose from the following list):

Top management commitment, customer focus, policy and strategy, process management, continuous improvement, training and development, quality culture and communication

Are there any other factors that you would add……?”

The main and sub-theme nodes are illustrated in Figure 5.5 below.

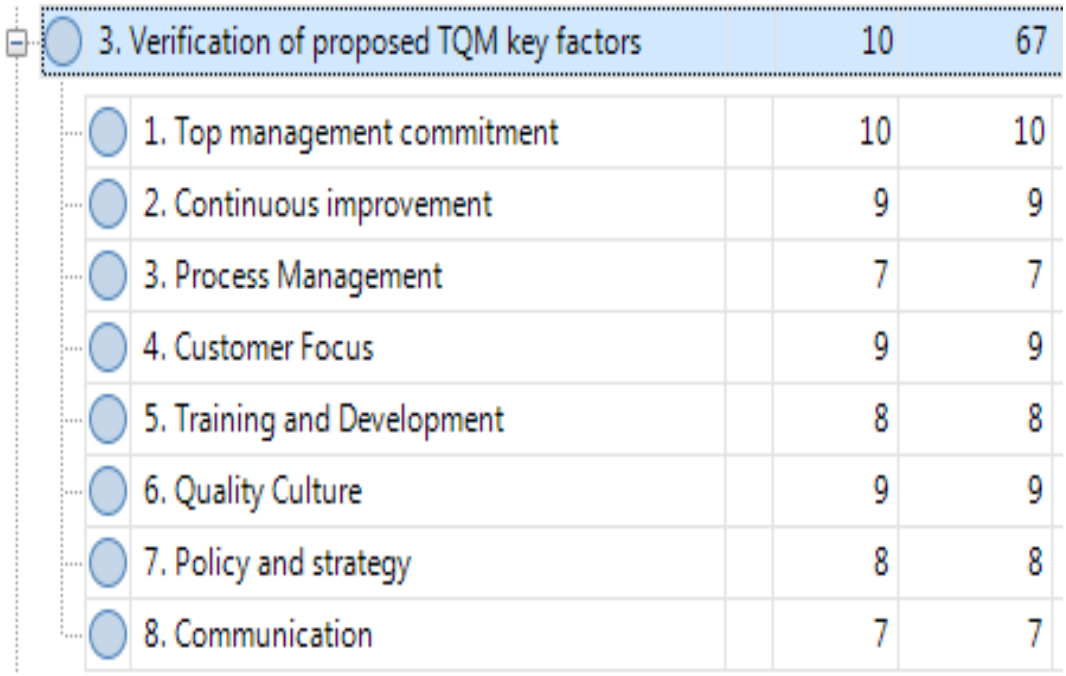


Figure 5.5 Nodes for the Verification of Proposed TQM Key Factors

5.3.2.2.1. Top Management Commitment

Top management commitment is considered by all interviewees as a significant factor of TQM implementation. Interviewee CP1 mentioned that this aspect was essential for funds and resource allocation, by stating:

“Top management commitment is an essential factor because it is responsible for making decisions and allocating the resources required for adopting and implementing any sophisticated system like TQM”.

At the same time, interviewee CP10 affirmed that the company would do nothing without commitment and support from the senior managers, he stated that:

“Top management commitment is first and foremost, because without top management commitment and support the company will do nothing in terms of TQM implementation”.

In addition, interviewee CP4 emphasised that top management commitment was not only imperative, but also was an indicator for successful TQM implementation:

"Top management commitment is the most significant factor regarding TQM implementation as it not only represents a factor for success but also as an indicator to achieve it".

Moreover, interviewee CP5 went further by explaining why top management commitment and support were significant for TQM. This is mainly attributed to the power and wide authority to make decision, by saying:

"Due to the top management's power and wide authority to make decisions, commitment and support for them, are considered as crucial factors of TQM implementation in the company".

Overall, it can be concluded that top management was seen as mainly responsible for creating an appropriate environment and a solid foundation and was considered to be a key component of successful TQM implementation.

5.3.2.2.2. Continuous Improvement

Markedly, most respondents agreed that continuous improvement was a principal factor of TQM. For example, interviewee CP1 pointed out that continuous improvement is a critical factor for implementing any quality initiative such as TQM as it contributes to facilitation of implementing the best practices for carrying out company's activities in addition to diagnosing the problems, by stating:

"From my perspective, continuous improvement is considered an essential requirement for any quality system such as ISO9001-2008 or TQM. As it focuses on adopting the best practices for conducting work activities. In addition to diagnosing problems that could occur, to take the best corrective actions accordingly".

Meanwhile interviewees CP4 and CP8 confirmed that continuous improvement was not considered as restrictive of best practices related to job activities, as it focused continuously on improving everything and consequently, was seen as contributing effectively towards achieving the quality goals. Interviewee CP4 asserted that:

"Continuous improvement does not only concentrate on the best aspects of conducting work but also on the corrective and preventative action procedures, which is why I do believe it represents an essential factor of TQM implementation".

Moreover, interviewee CP5 clarified in detail the reason behind applying this factor in the company, he stressed that continuous improvement is a reliable indicator for achieving success in all company's activities, by stating:

"No doubt, one of the most significant goals of applying any new system or programme is to achieve continuous improvement for all company operations and activities and get better and better at what they do ideally. Therefore, the company should focus on continuous improvement in all its activities, as it represents a reliable indicator of its success".

Based on these responses, it can be concluded that continuous improvement was seen as a vital part of TQM implementation as it was seen as playing a crucial role in terms of improving the entire company's performance to achieve better results in the future.

5.3.2.2.3. Process Management

In relation to the process management, interviewees CP6 and CP3 revealed that process management was another key factor that led to cost, time and error reduction. For example interviewee CP6 asserted that:

"I do believe that process management is vital because when the company's activities are managed as a process this will help reduce cost, time and mistakes, as a result leading to improvement".

Interviewee CP9 pointed out to the importance of process management as it helps the company to assess and examine its capabilities and shortfalls in its operations, by saying:

"Process management is significant, as it helps our company to evaluate and analyse strengths and weaknesses, as well as identifying problems and any inefficiencies in the system. Therefore, it is a key element for adopting TQM".

Interestingly, interviewee CP5 stressed the terms of process and process management in relation to TQM as it provides a clear understanding of how things are really done, by revealing problems in advance and tracking progress, by stating:

"Based on my knowledge and experience, the term process refers to doing things before, during and after, the accomplishment of the work. Therefore, as far as TQM is concerned, process management is significant for implementation, because it provides a clear understanding of how things are really done, by revealing problems in advance and tracking progress".

It can be concluded that process management was perceived as playing a crucial role in TQM, particularly in terms of evaluating all the company's activities on a regular basis, to identify

their strengths and weaknesses. Similarly, identifying what needed to be done, what had worked well and what had been unsuccessful were also important considerations.

5.3.2.2.4. Customer Focus

With regards to customer focus as an essential factor of TQM implementation, interviewee CP4 emphasised the relationship between the importance of meeting the requirements of an international oil company in Iraq and implementing TQM, by stating that:

"*Customer focus is essential for our company, that is why one of the main reasons for adopting and implementing the current quality management system in the company is attributed to meeting the requirements of an international oil company in Iraq. Likewise, if the company decided to adopt and implement TQM, for sure customer focus will be one of the significant factors that leads to such a decision".*

In the same context, interviewee CP1 stressed that if the company aims to implement TQM it must consider its customers as a priority, by saying that:

"IDC is a contracting company, which means it deals with customers in term of implementing its activities. That is why customers represent the focal point to the company. In other words, the company's customers must be considered as a priority, especially if the company intends to adopt and implement any quality approach or system like TQM".

Likewise, this view was echoed by other interviewees, for example interviewee CP10 pointed out that customer satisfaction is considered as an indicator of evaluating success, asserting that:

"Customers satisfaction represents an essential indicator for the company regarding evaluating its success. Thus, it is considered as one of the critical factors in terms of adopting and implementing any management approach such as TQM".

Moreover, interviewee CP9 insisted that customers represents the source of revenue for the company, by saying:

"It is well acknowledged that in our company, customer satisfaction is the company's highest priority, because it represents the means that provide revenue, no customers mean there is no business to be done".

Thus, most participants acknowledged that customers were central to the company's business. Hence, customer focus was perceived as a key indicator of measuring a company's success, failure and sustainability among its competitors.

5.3.2.2.5. Training and Development

With regards to training and development, interviewee CP8 stressed that, effective training and development represents a significant factor for any quality initiatives such as TQM as it provide all required knowledge for successful implementation, stating:

"There is no doubt that, effective training and development programmes, sessions and workshops, provide employees with all the necessary knowledge required to implement and assess any quality initiatives such as TQM, across the company".

Likewise, interviewees CP5 agreed with CP8 and shed light on the fact that the company should view training and development expenses as an investment rather than cost, explaining that:

"I believe, training and development programmes have a profound impact on increasing employees' awareness, in addition to sharpening and enhancing their skills and experience". Adding, *"The company should view training and development expenses as both short and long term investment, rather than cost. Because maintaining constant improvement and high quality levels requires qualified and capable staff".*

In addition, interviewee CP10 shared a similar belief about the reasons for training and development in the company, repeating that:

"Training and development are key towards implementing any significant quality initiative. Therefore, all the company's staff should receive specialised training and development courses. To guarantee full understanding and awareness about TQM and enhance knowledge and experience to fulfil the tasks and activities in the most appropriate way".

In summary, TQM was viewed as the responsibility of everyone in the company. Thus, the company should provide all the necessary resources required for increasing and enhancing awareness, knowledge and consideration for the staff as valuable long-term resources.

5.3.2.2.6. Quality Culture

In relation to quality culture, interviewee CP5 explained that changing a company's culture to a quality culture was an indicator of TQM success, by stating:

"Generally, the company's culture is one of the main determinants for any programme. Therefore, changing the culture to one of quality culture, represents a strong indicator of successfully adopting and implementing TQM".

Interviewee CP2 pointed out that, although quality culture is essential for TQM implementation however, resistance to change should be considered during the implementation process, stating that:

"It is not easy to change the attitudes and mentalities of the employees due to the resistance to change. However, I strongly believe that quality culture is essential for TQM implementation".

Additionally, interviewee CP4 held similar views about the difficulties involved in transforming an employee's current culture, by saying:

"In fact, it is very difficult to change an employee's current culture because it is related to their values, behaviours, and practices. Therefore, the company should be focusing its efforts on implanting quality culture as it represents a major step for TQM implementation".

Interviewee CP7 shed light on the top management as a starting point to promote quality culture towards all company's staff, explaining that:

"Quality culture must be generated by the top management, in which all the company staff have to feel that they are involved and responsible for achieving the company's success. Otherwise, they are unlikely to behave in a responsible way, especially if they perceive the management to be acting irresponsibly towards them".

In summary, TQM culture was seen as a necessity to be created and disseminated by the company's management team, based on the philosophy that all the staff shared the same values and direction towards achieving the company's objectives.

5.3.2.2.7. Policy and Strategy

In the context of policy and strategy as a TQM key factor, interviewee CP2 pointed out to the significance of articulating a strategy and setting out policy prior to adopting any quality initiatives such as TQM, by stating:

"It is important for the company to formulate strategy and set out appropriate policy before initiating any quality initiatives such as TQM or any significant changes".

Similarly, interviewee CP8 considered policy and strategy to be a vital element in achieving success, by indicating:

"For sure formulating an effective strategy along with deploying a clear policy is a vital element in achieving the success of any implementation related to quality initiatives".

In the same context, interviewee CP5 confirmed that, articulating effective strategy and disseminate best policy considered to be a baseline for successful TQM implementation, stating that:

"Formulating an effective strategy and deploying the best policies related to quality, provides the context and a launching platform for the successful implementation of TQM".

This was supported by interviewee CP10 who also shed the light on the certain procedures that should be met to implement TQM successfully, by stating that:

"The successful implementation of TQM or any quality initiatives should comply with the company's strategy. Moreover, it should make quality a top priority in the company's activities". He added that, *"In order to apply TQM successfully there are procedures that should be met, for instance internal record procedure, internal audit procedures and corrective and preventive actions procedures".*

Therefore, it can be argued that an effective strategic vision that integrates quality into the company's strategy, as well as deploying the best policies was seen to be essential by the participants. Both were considered to be essential components, which helped to pave the way for successful TQM implementation.

5.3.2.2.8. Communication

With regards to communication, interviewee, CP9 revealed that effective communication would help to reduce the bureaucracy in the company, by explaining:

"Based on my experience, I think establishing an effective communication system will help the company to have an effective administrative system with less bureaucratic procedures".

Interviewee CP2 stated that communication is critical for applying TQM as it contributes facilitate workflow and improve coordination in the company, by indicating that:

"No doubt effective communication is essential for adopting and implementing TQM, because it facilitates workflow and enhances coordination amongst all the company's divisions and departments".

Similarly, interviewee CP3 pointed to the importance of communication between company's departments and units. Additionally, he shed the light on the consequences of the weak communication, by explaining that:

"Since TQM is a holistic organisational approach, effective communication across all the company's levels is significant for successful TQM implementation. Moreover, I do believe that bad or weak communication will lead to interruptions and confusion in the workplace as well as possible misunderstandings of what is to be done".

As a result, applying effective, timely and accurate communication across the entire company's hierarchy was seen as allowing successful TQM implementation to be attainable.

Finally, in the case of the second part of the question, "are there other factors you would add?", none of the interviewees added any supplementary factors, despite the researcher offering the option in this subsection.

5.3.3. The Barriers that Hinder TQM Implementation

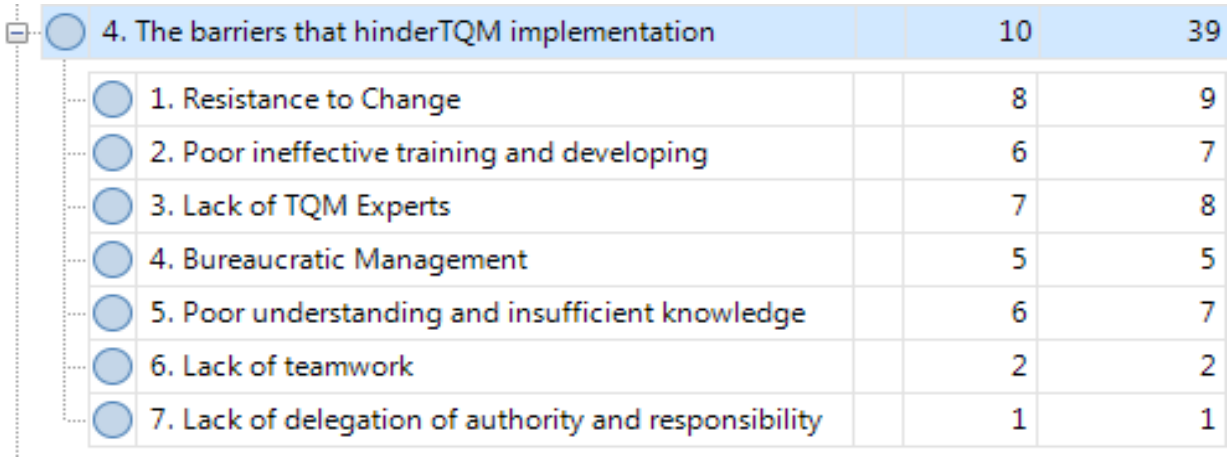
The purpose of this section was to identify the main barriers that hindered TQM implementation in the company, which represents the third objective of this research. Under this core theme, there were seven sub-theme nodes, as illustrated in Figure 5.6 below.

The questions posed to the interviewees was, "do you think that adopting and implementing TQM in your company will face barriers?"

"If yes, what are the main barriers that may hinder the adoption and implementation of TQM in your company?"

"If no give reasons?"

The interviewees have discussed several barriers they considered as hindering TQM implementation; these barriers are presented below:



4. The barriers that hinderTQM implementation		10	39
1. Resistance to Change		8	9
2. Poor ineffective training and developing		6	7
3. Lack of TQM Experts		7	8
4. Bureaucratic Management		5	5
5. Poor understanding and insufficient knowledge		6	7
6. Lack of teamwork		2	2
7. Lack of delegation of authority and responsibility		1	1

Figure 5.6 Nodes for TQM Implementation Barriers

5.3.3.1. Resistance to Change

According to the results, resistance to change was considered by the interviewees such as CP1 and CP9 as one of the main factors impeding TQM implementation. Interviewee CP1 pointed out that since applying TQM practices will change employees' work styles thus resistance of this change will arise, explaining that:

"Resistance to change might happen, because TQM will alter a lot of practices, including behaviour and regulations inside the company. Or as the result of an unwillingness and resistance to change what has become second nature to follow and a preference".

Along the same line, interviewee CP4 agreed with CP1 and shed light on quality culture as a means to overcome the resistance to change, by stating:

"I think since adopting TQM is a relatively novel approach or system in IDC, it might lead to a lot of practices and work patterns being changed inside the company, as a result resistance to change might come to the surface. Thus to overcome resistance to change the company should changing company's culture to be quality culture".

While, interviewee CP2 indicated to some of the reasons behind resistance to change, by saying that:

"I believe that resistance to change may appear due to TQM implementation for many reasons. Such as a reluctance to change behavioural norms and a preference to persevere with older regulations and procedures".

In addition, interviewee CP8 confirmed the idea that resistance to change was not only restricted to the employees, but also included managers as well, stating that:

"Resistance to change will emerge in the various levels of a hierarchy, due to the impact of TQM implementation on their positions or interests. This includes not only employees and supervisors, but some managers, particularly if they are front line managers".

Consequently, it can be concluded that resistance to change by a company's workforce at different managerial levels, can be attributed to two main reasons. Firstly, is the unwillingness to change what has become a custom or norm and secondly, the avoidance of undertaking more responsibilities as the TQM or another quality approach required.

5.3.3.2. Poor Ineffective Training and Development

In relation to poor, ineffective training and development programmes, interviewees CP8 and CP10 stressed on the fact that since the majority of company's staff have a lack perception of TQM, thus absence of effective TQM training and development will impede the successful TQM implementation, CP8 stated that:

"There is a high percentage of company staff, with a lack or low awareness of TQM, so deficient or poor training and development, will have a negative effect on the ability of the company to implement TQM successfully".

The previous point of view was supported by interviewee CP5 who also shed the light on the idea that TQM training should include all the staff in the company regardless their managerial levels and positions, by explaining that:

"A lack of organizing an effective and systematic TQM training programme for the whole workforce regardless of their positions, represents a roadblock towards achieving successful TQM implementation. Therefore, the company should focus on organizing such training programmes before launching TQM in its activities". Adding that, *"the TQM training programme should include all the staff and not be restricted to a certain hierarchical level in the company".*

Notably, interviewee CP4 stressed that inefficient training and development programmes in quality management would hamper a successful and an efficient TQM implementation. Thus, contracting with a third-party organisation that provided efficient training was seen as one of the best options for overcoming this barrier, stating that:

"I believe the training courses or programmes dedicated to quality management inside the company are not effective, as they are focused on the theoretical issues, rather than the practical ones. This lack of efficient training programmes will impede a successful TQM implementation. Therefore, contracting an outside trainer, such as a university or specialized institution, that provides fundamental consultation, training and development, is a key element of successful TQM implementation".

To sum up, inefficient training and development programmes were seen as impeding the successful and effective implementation of TQM in the company. Therefore, training and development for all levels of a company were considered as fundamental steps in the right direction for the successful execution of TQM and as such needed to be provided continuously.

5.3.3.3. Lack of TQM Experts

Another TQM barrier, which has been identified from the interviews, is the lack of TQM experts. With some of the interviewees, such as CP4 stating that the lack of qualified TQM personnel might hinder the company in achieving successful TQM implementation, stating that:

"I believe that experts in any kind of system or programme are necessary to achieve effective implementation. As there is a shortage of qualified TQM personnel in the company, this might lead to difficulties in achieving successful TQM implementation".

Meanwhile, interviewee CP9 stressed on the fact that type of skills and knowledge of personnel who work in quality management as well as their number are important to implement TQM effectively, by clarifying that:

"Although we have staff, who are qualified in the quality management system, their knowledge and skills as well as their number, may prove insufficient to implement TQM effectively".

Nonetheless, interviewee CP10 suggested a solution for dealing with the issue of insufficient experts, by advocating:

"Obviously, there are no TQM experts at the company, which is a critical challenge towards TQM implementation. Therefore, before adopting it, the management should focus on organizing intensive and advanced TQM training courses. These courses should be devoted specifically to every member of the quality management department, with the aim of being trained as a TQM mentor and coach".

As a result, based on the above discussions, an insufficient number of experts and a shortage of qualified employees in TQM was seen as an impediment to successful TQM implementation.

5.3.3.4. Bureaucratic Management

Bureaucracy was another TQM barrier that emerged from the interviewee's responses. Interviewee CP5 indicated that bureaucracy was predominantly associated with the governmental sector, by saying that:

"Bureaucracy may represent one of the barriers, as it is connected to delays, routine procedures and time wasting. It tends to appear more if the company belongs to a governmental sector, where bureaucracy is widely known to exist".

Similarly, interviewee CP4 agreed with CP5 and also declared that bureaucracy mainly attributed to the regulations and procedures of the governmental companies moreover, it is not restricted to a certain managerial level, by explaining that:

"I think a traditional management style or bureaucracy might be seen as one of the barriers for TQM implementation and this is mainly due to the regulations and procedures of the companies that belong specifically to the governmental sector". CP4 added that, *"Bureaucracy is not restricted to a certain managerial level, as it's associated with following routine instructions and procedures without any creativity. The manager or the employee mostly does whatever their superior asks according to the job responsibilities."*

Moreover, interviewee CP10 shed the light on the bureaucracy in Iraqi Ministry of Oil in particular, thus he gave another explanation for bureaucracy in oil companies being a hindrance, by stating:

"It is well known that all Iraqi oil companies, regardless of their activities, belong to the Ministry of Oil, which means that all their strategic decisions, policies, and contracts should be under its supervision and control. Because of the procedures and routines in place, an issue that should take three to five days can sometimes take three weeks for approval and/or appropriate feedback". He added further: *"I strongly believe that bureaucracy is one of the main barriers to implementing TQM or any sophisticated system".*

Thus, it can be concluded that bureaucratic culture and practices such as routine paperwork, complicated instructions and several procedural stages, were seen as mostly prevalent in companies that operated in the Iraqi oil sector. Thus, bureaucracy was considered as essential fundamental barrier that impeded TQM implementation.

5.3.3.5. Poor Understanding and Insufficient Knowledge of TQM

Based on an analysis of the information received in the interviews, poor understanding and insufficient knowledge were also considered as TQM barriers in the company. For example, interviewee CP9 indicated that insufficient knowledge in relation to TQM, might form an obstacle towards its implementation, by stating:

"*Poor understanding and knowledge about TQM represents a real challenge and barrier to adopting and applying it successfully, because most of the company's employees have limited knowledge of its practices*".

Likewise, interviewee CP2 confirmed to the same point of view that was raised by interviewee CP9, by saying:

"Based on my experience, I can say, one of the biggest challenges of applying any new system like TQM is insufficient or ambiguity and/or a shortage of knowledge, that is required for successful implementation".

In the same context interviewee CP2 indicated that poor understanding and lack of knowledge of TQM is considered as an essential barrier of TQM implementation. He also shed light on a solution that might help the company to overcome this barrier, by explaining that:

"Poor understanding and lack of knowledge of TQM is an essential barrier of TQM implementation. Therefore, in order to overcome this barrier the company should make sure that all its employees have received effective training courses before initiating TQM in the company to guarantee full understanding regarding its practices, benefits as well as the role of the employees in the implementation process".

Thus, it can be concluded that a lack of understanding, ambiguity and inadequate knowledge regarding the practices and the benefits of TQM were foremost obstacles to the implementation of TQM.

5.3.3.6. Lack of Teamwork

Poor teamwork was another TQM barrier extracted from the interview findings. According to interviewee CP5 who pointed out to the poor teamwork and collaboration between companies departments, by stating that:

"I believe that TQM is seeking to integrate all the employees and departments in the company towards improving its entire performance. Therefore, poor teamwork and collaboration between departments is one of the critical barriers".

While, interviewee CP10 indicated that there was absence of team building methods and cooperation amongst company workers of deferent units in the company. He stated that:

"A lack of teamwork or team spirit among employees from different departments, as well as the absence of teamwork building techniques in the company, is a decisive barrier to TQM implementation".

Consequently, the implementation of TQM in a company was seen as not merely an individual's work, but everyone's responsibility to share in the process equally. Therefore, poor or insufficient teamwork was seen as a barrier to the successful and effective application of TQM across the company.

5.3.3.7. Lack of Delegation of Authority and Responsibility

Interestingly, from the perspective of interviewee CP8, unsatisfactory delegation of authority and responsibility was seen as a possible barrier to TQM implementation. He explained that:

"I can say that a lack of delegated authority and responsibility is one of the barriers to TQM implementation". He added that*: "Despite the importance of delegation, unfortunately most of the managers, especially in high positions, are unlikely to find it easy to delegate their authority and responsibility to other managers, supervisors or employees in the company".*

Thus, this indicated that some of the top managers found it difficult to delegate their authority to other managers. It can be concluded that rejection or the reluctance of managers to delegate authority and responsibility to their subordinates was one of the barriers to TQM implementation.

5.3.4. The Benefits Gained by TQM Implementation

The purpose of this section was to identify the main benefits for the company by adopting and implementing TQM, which represents the fourth objective of this research. Under this main theme there were five main theme nodes, which are clearly described in Figure 5.7 below.

The question posed to the interviewees was; "Do you think that the implementation of TQM will achieve important and useful benefits for the company?"

"If yes, what are the main potential benefits that your company will acquire by applying TQM?"

"If no, give reasons".

Markedly, all the interviewees agreed that the main benefit of applying TQM was seen to be an improvement in the company's entire performance. When asked in which specific area the performance would improve, the interviewees indicated several areas. Overall, the semi-structured interviewees supplied the following potential benefits: Customer satisfaction, employee satisfaction, financial performance, the elimination of waste and defects and finally, a decreasing the company's impact on the environment. All of the above listed factors were seen as potential benefits that their company could gain by applying TQM.

5. The benefits of TQM implementation		10	43
1. Improving Customer Satisfaction		10	10
2. Improving Employee Satisfaction		7	8
3. Eleminating Waste and Defects		6	9
4. Improving Financial Performance		7	9
5. Decreasing the Company's Impact on the Environment		5	7

Figure 5.7 Nodes for the Benefits of TQM Implementation

5.3.4.1. Improving Customer Satisfaction

In respect to customer satisfaction as one of the most significant benefits of implemnting TQM in the company. Interviewee CP2 stressed that applying TQM makes the company to be aware of the customer needs and the requirement that ought to be met, by stating that:

"No doubt implementing TQM will improve customer satisfaction because the company will follow quality criteria in all aspects of works towards its customers". Also adding that, *"customer satisfaction not only requires an understanding of customer requirements, but also a determination of the extent to which those requirements are being met".*

Similarly, interviewee CP1 pointed out that by applying TQM in a company, improving customers' satisfaction and meeting their requirements would be expected to be designated as the first priority and an indicator towards success, declaring that:

"Applying TQM has a positive impact on improving customer satisfaction, as it represents one of the significant priorities on the company's agenda". Further adding: "Achieving customer satisfaction is an indicator that the company is moving on the right track".

Meanwhile, interviewees CP5 and CP4 both mentioned that TQM implementation by the company would increase customer satisfaction, particularly foreign customers. In this matter, interviewee CP5 declared that: *"I do believe it will increase customer satisfaction, especially the foreign customers, who represent the international oil companies working in Iraq like BP, Shell, and Eni".*

In the same context, interviewee CP10 believed that applying TQM would improve customer relations by meeting their needs and requirements, as well as strengthening the competitive position of the company effectively. He explained that: *"Applying TQM will help the company to understand customer requirements and needs, while maximizing customer retention and strengthening the company's competitive position. Especially against the international companies that work in the same field in Iraq".*

Likewise, interviewee CP8 asserted that: *"I think the most significant advantage of applying a TQM system in our company is responding positively to customer's needs, enhancing the company's image and increasing its competitiveness. Therefore, enabling effective relationships with international oil companies working in Iraq".*

Thus, it can be concluded that TQM implementation was seen as enhancing and meeting the needs of the customer and their requirements, which can be seen as a significant measure of the company's performance and an indicator of success or failure.

5.3.4.2. Improving Employee Satisfaction

From the perspective of the interviewees, employee satisfaction was seen as one of the positive benefits of implementing TQM in the company. For instance, interviewee CP10 stated that it had a positive impact on performance improvement for both the employees and operations, by saying that:

"Applying TQM will contribute to improving and developing the performance of the company's staff and operations". *Moreover, adding that it, "also helps to establish teamwork, develop skills and reduce cost and time related to the work activities".*

On the other hand, interviewee CP2 revealed that applying TQM could improve the company's working conditions particularly in the work site, by explaining that:

"I strongly believe that one of the most important advantages of implementing TQM in our company is that it will contribute efficiently to improving working conditions. Especially in the work sites, where the operations related to drilling, reclamation and oil well development take place".

Additionally, interviewee CP5 indicated to the significant role of TQM in terms of improving the relationship between employees and their managers, by stating that:

"For sure applying any quality initiatives like TQM, play a key role towards improving the work environment by enhancing the relationships between employees and their managers and supervisors".

From these responses, it is possible to predict that the influence of TQM would produce positive impacts on employees by improving the level of satisfaction, commitment, and work environment. Thus, improved employee performance could be seen as an expected consequence of TQM implementation.

5.3.4.3. Eliminating Waste and Defects

Based on an analysis of the information received in the interviews, eliminating waste and defects was also considered as TQM benefit in the company. For example, interviewee CP5 indicated that one of the positive impact of applying quality initiatives such as TQM is eliminating waste and defects in the work activities, by saying that:

"*Based on my experience, I believe that applying quality initiatives like TQM have a positive impact on eliminating waste and defects, as well as decreasing interruptions in the work activities".*

In the same context, interviewee CP8 shed some light on daily operations of the company, stating that: *"Applying an integrated system like TQM will contribute effectively in terms of eliminating waste and interruption related to company's daily operations".*

While, interviewee CP9 stressed on the positive effects it could have on the company's resources, by stating that:

"Adopting TQM will provide the company with an opportunity to utilise its resources effectively without mistakes and interruption".

Likewise, interviewee CP2 agree with CP9 and shed light on the fieldwork, by declaring that, *"Realising TQM will help the management to identify the defects and errors in resources, as well as waste and interruptions in the company's activities especially in the fieldwork."*

Consequently, the implementation of TQM by the company was seen as possibly leading to better practices with regards to the reduction and elimination of waste and defects resulting from their activities. This was seen as applying particularly in the work field, where major activities such as drilling and oil well development tended to occur.

5.3.4.4. Improving Financial Performance

In relation to financial performance, interviewees CP3 and CP10 agreed that employing TQM would contribute positively in terms of improving financial performance and increasing the company's profitability. For instance interviewee CP3 stateed that: *"improving the company's financial performance and revenue should be expected as one of the results of running a TQM programme".*

In the same context, interviewee CP4 pointed out the benefits gained by the company in the long term, by saying that:

"Applying a sophisticated system such as TQM by the company will contribute positively to enhancing revenue and decreasing cost in the long term".

Meanwhile, interviewee CP2 revealed indirectly that implementing TQM could have a positive influence on market share, by stating:

"Applying TQM in the company will enhance its position in the markets, because the company will follow quality criteria in all aspects of work towards its customers. Thus, it will be able to increase its size or output by gaining more work compared to its competitors".

Interviewee CP5 focused on the link between customer satisfaction and achieving profitability, by asserting that:

"If the company adopts TQM, this should increase customer satisfaction, which in turn, will increase the company's profitability automatically".

Therefore, it can be concluded that employing TQM was seen as potentially having a positive effect on financial performance by decreasing cost, increasing revenue and market share expansion, which can be directly translated into profit. So, financial performance could be considered as a major stimulus for commitment and motivation among employees and management, on the road towards implementing TQM effectively.

5.3.4.5. Decreasing the Company's Impact on the Environment

Another benefit that has been extracted from the qualitative data analysis is a reduction in the company's impact on the environment. In this regards, interviewee CP10 discussed the effect of reducing the negative consequences to the surrounding environment, by stating that, *"Due to the nature of the company's activities, this can cause negative effects on the environment, so applying quality management initiatives like TQM should help the company reduce its detrimental activities in the surrounding areas, where the company conducts its field operations".*

Likewise, interviewee CP1 shared the same view by saying that: "*Decreasing the company's environmental impact would be one of the major benefits acquired by applying TQM".*

Additionally,Interviewee CP8 believed that shed light on the main work field activities, where the company conducts its operations, by explaining that:

"The company is moving towards dealing with its working field environment positively through its QHSE division. However, I think by implementing TQM effectively the company could do better and better, especially in terms of mitigating the negative impact of its activities related to drilling, reclamation and developing oil wells in the environment, where the company conducts its operations".

To sum up, applying TQM was seen as potentially contributing positively in terms of reducing or mitigating the negative effects of the company's operations in its surrounding environment.

5.4. Updating the Conceptual Framework

Based on the findings and results gained from the analysis of the semi-structured interviews, the initial conceptual framework, which was developed in chapter two, has been updated and refined. Figure 5.8 below illustrates the up to date framework. It is characterised by three principal areas, firstly, the barriers that hinder TQM implementation which include poor understanding and insufficient knowledge of TQM, resistance to change, lack of teamwork, lack of TQM experts, bureaucratic management, poor ineffective training and development and lack of delegation of authority and responsibility. Secondly, the key factors required for implementing TQM successfully, which include top management commitment, continuous improvement, process management, customer focus, training and development, quality culture, policy and strategy, communication in addition to, employee empowerment which was not initially considered in the initial conceptual framework. The third area was the potential benefits of TQM implementation these include improving customer satisfaction, improving employee satisfaction, eliminating waste and defects and decreasing company's impact on the environment. The relationship between these three areas will be empirically investigated in the next chapter.

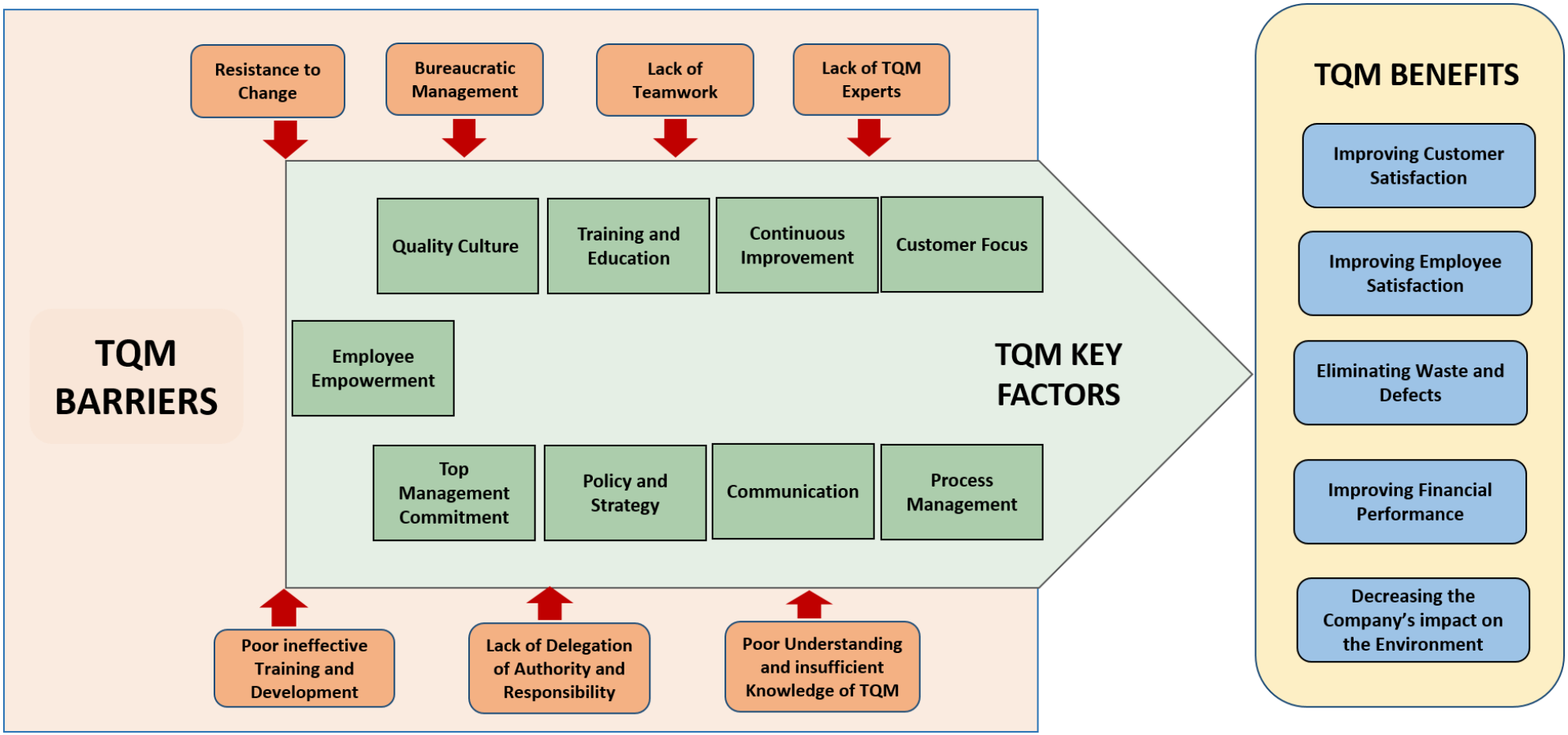


Figure 5.8 Updated Conceptual Framework informed by Semi-Structured Interview

5.5. Chapter Summary

This chapter focuses in detail on an analysis of the interviews, which were conducted with 10 top managers, occupying high positions in the case study. The aims of this chapter were to further explore the state of TQM implementation through four main themes: TQM awareness, key factors, the requirements of implementing TQM, the barriers to TQM implementation and the benefits of the successful implementation. As the analysis indicates, these aims were satisfied together with an analysis of the key themes of the interviewees in relation to TQM. The key results of the TQM awareness indicated that the company has a solid foundation that might be used as an introduction to the implementation of TQM. In respect of the required key factors of TQM implementation are examined, with an analysis of the results being verified with proposed ones. This is to compare both similarities and opposing viewpoints that have been extracted from the identification of TQM features. In this regard, the interviewees have had similar opinions in terms of top management commitment, continuous improvement and customer focus. Also, most of the interviewees strongly believe that process management and communication are key factors.

Additionally, the analysis results, most of the respondents have reached agreement with regards to strategy and policy, quality culture, and training and development. Notably, these aspects were implicitly addressed by the interviewees when the respondents were asked to identify TQM factors related to strategic planning, cultural change and awareness enhancement. Consequently, it is possible to conclude that strategy and policy, quality culture and training and development are all agreed as essential components. Furthermore, employee empowerment is identified by the interviewees as another essential key factors of TQM implementation which was not initially considered in the initial conceptual framework.

The empirical study showed seven barriers that hinder the successful implementation in the case study. These barriers are: resistance to change, poor ineffective training and development, bureaucratic management, lack of delegation of authority and responsibility, lack of teamwork, poor understanding and insufficient knowledge of TQM and lack of TQM experts. The results disclosed that TQM implementation is perceived to be beneficial for the case study in terms of improving customer satisfaction, improving employee satisfaction, eliminating waste and defects, improving financial performance and decreasing company's impact on the environment. These key findings from the interview data resulted in a refinement to the conceptual framework developed in this research as was illustrated in Figure 5.8.

CHAPTER SIX

QUANTITATIVE DATA ANALYSIS

Chapter 6: Quantitative Data Analysis

6.1. Introduction

This chapter presents the analysis of the data collected from the survey questionnaire. The questionnaire was collected from 118 participants, ranging from middle, junior and quality managers. The key findings were expected to meet the main objective of this study and to develop a framework for Total Quality Management (TQM) implementation in Iraqi upstream oil sector. Descriptive and inferential statistics have been produced by utilising Excel and SPSS (Statistical Package for Social Scientists 23) software programmes.

This chapter consists of three parts; the first part focuses on descriptive data analysis; the second part presents an inferential data analysis and the final part presents a summary of the chapter.

6.2. Descriptive Analysis

In this study, the descriptive statistical analysis includes five sections. Section one describes the characteristics of the respondents. Section two deals with the knowledge and awareness of TQM. Section three focuses on the key factors of TQM. Section four focuses on the barriers to implementing TQM in the company and the last section deals with the benefits associated with it.

6.2.1. Characteristics of the Respondents

This section presents the main characteristics of the respondents by means of tables and graphs.

6.2.1.1. The Positions of the Respondents

In relation to the job position of the respondents, Figure 6.1 shows that, nearly half of the respondents (47.4%) were junior managers and 32.2% were in middle management. Quality management staff represented 20.3% of the sample.

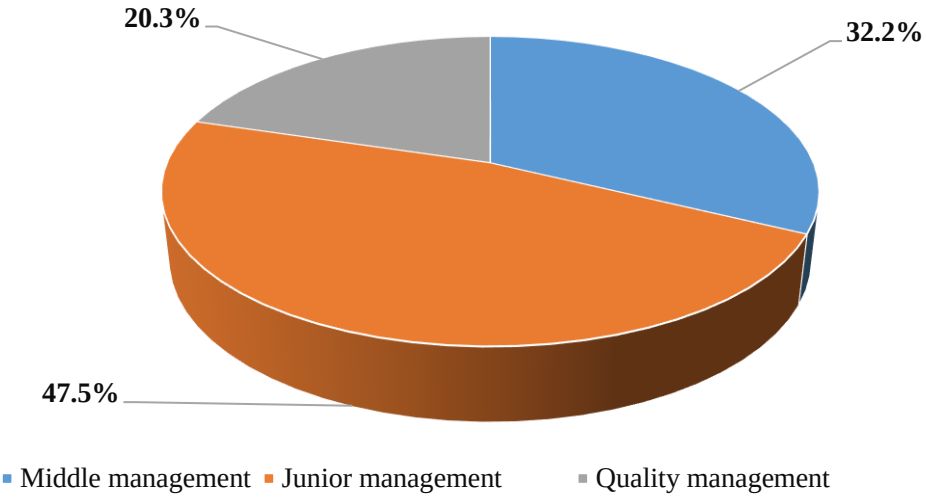


Figure 6.1 Frequency Distribution of the Respondent's Position

Managers at both the middle and junior levels had a significant role regarding managing, organising and supervising different company activities, thus, potentially leading the way in the successful implementation of TQM. Although, due to the nature of activities and experiences of applying and supervising a quality management system in the company, the quality management staff could also be crucial for the achievement of successful TQM in the company.

6.2.1.2. The Qualifications of the Respondents

Figure 6.2 illustrates the different levels of academic qualifications among the respondents.

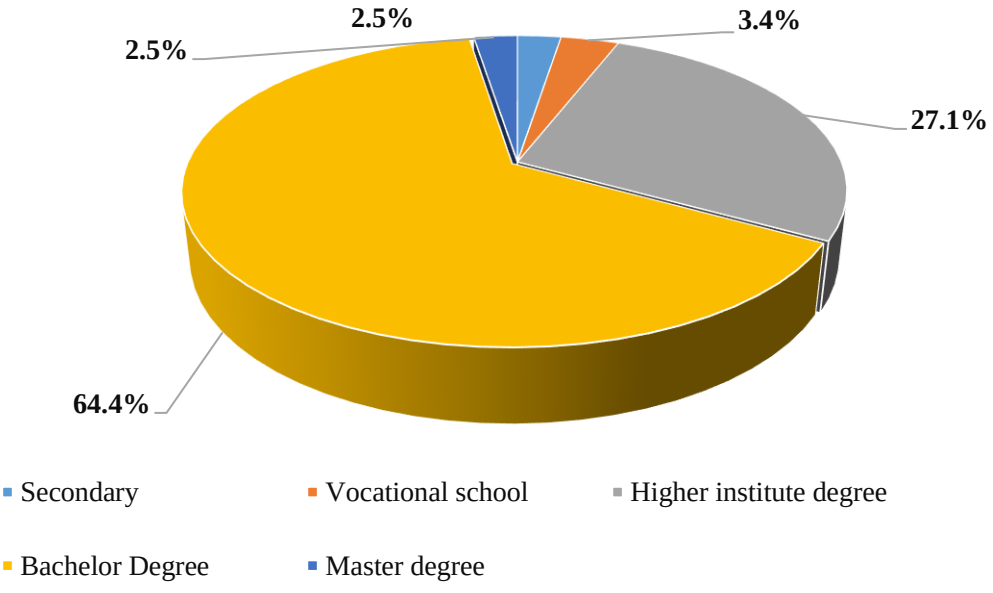


Figure 6.2 Frequency Distribution of the Respondent's Qualification

The highest proportion of the respondents (64.4%) held a bachelor degree. 27.1% held a higher institute degree and a further 3.3 % held a vocational school/ institute degree. 2.5% of respondents held a masters degree while the remaining 2.5% held a secondary school qualification.

It is well acknowledged that the implementation of TQM requires all levels of employees to be educated, well trained and able to analyse information and solve problems that arise at work. Therefore, the level of education is one of the most important indicators as to whether TQM is or can be employed successfully. This can also be considered as an indication of peoples' responsiveness to TQM awareness. Therefore, it can be stated that with respect to the qualifications of the respondents, these findings are encouraging.

6.2.1.3. Work Experience

With regards to the amount of work experience the staff currently have, the findings illustrated in Figure 6.3 show that almost 2% of the respondents have less than 5 years and 9.2% have less than 10 years, while 22.4% have between 11 and 15 years' experience and 42.05% have between 16 and 20 years. Finally, 24.45% of the respondents have more than 20 years of work experience.

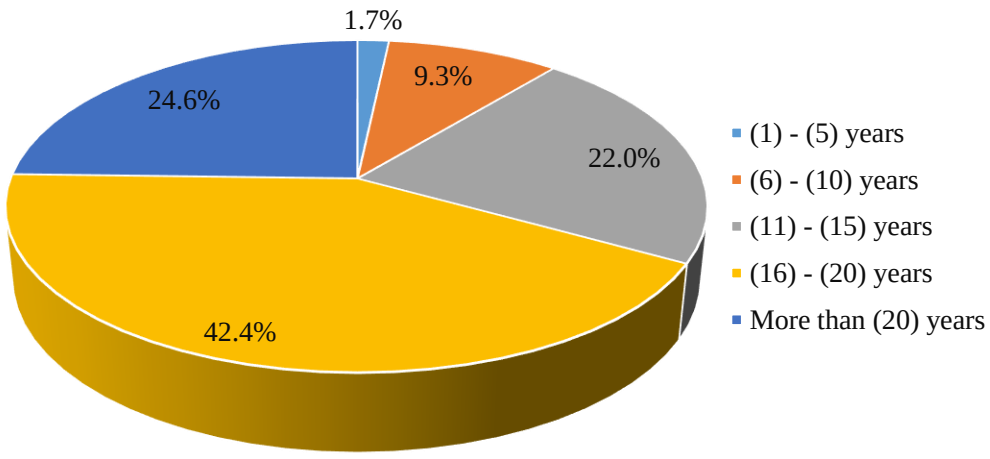


Figure 6.3 Frequency Distribution Regarding Respondents' Work Experience

The results indicate that, most of the respondents have a longer period of work experience, which indicates a wider knowledge about the actual situation in their company. Improving performance at many companies is influenced by the work experience of the employees; as it

can help to facilitate the company's efforts related to adopting and implementing quality initiatives like TQM.

6.2.2. TQM Awareness and Knowledge

The main objective of this section of the survey is to identify the participants' level of awareness and knowledge, in terms of the concept and importance of quality management initiatives, principally TQM.

6.2.2.1. The Meaning of Quality

Figure 6.4 shows the respondents' indication of their understanding of what constitutes quality. Almost half of the respondents (49.1%) believe that quality is equivalent to customer satisfaction; 22.8% perceived quality as conformity with the company's requirements, 18.6% conceived of quality in terms of level of fitness and 9.3% saw it as doing the right thing at the right time. There was an option to add other conceptualisations of quality, but none of respondents chose this option.

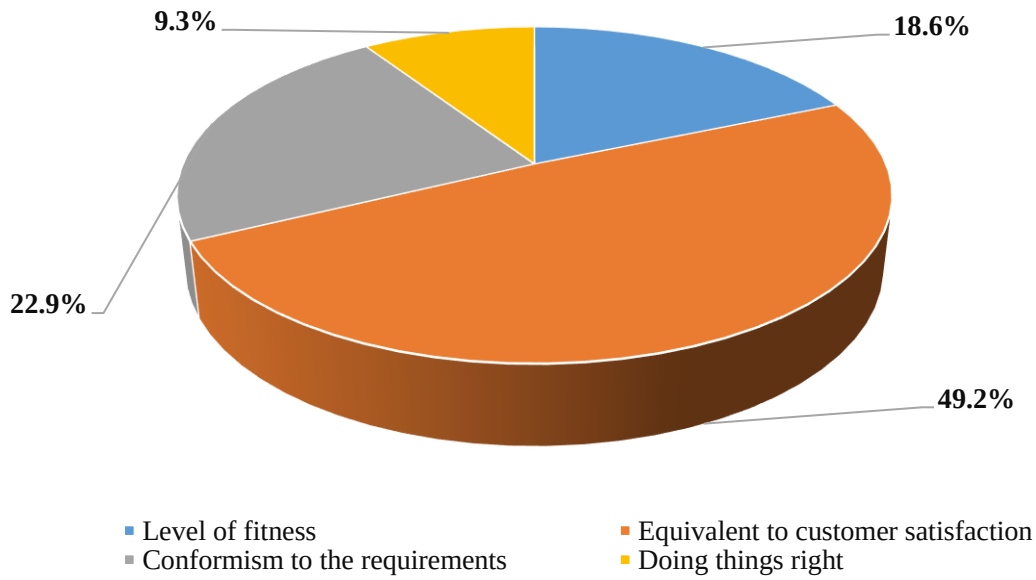


Figure 6.4 Frequency Distribution Regarding Respondents' Meaning of Quality

These results clearly show that most of the respondents viewed quality in terms of customer satisfaction. However, these viewpoints on the meaning of quality are focused on the end results rather than the processes of achieving them.

6.2.2.2. Knowledge of Quality Management Systems or Techniques

Figure 6.5 illustrates the levels of knowledge of quality management systems among the respondents.

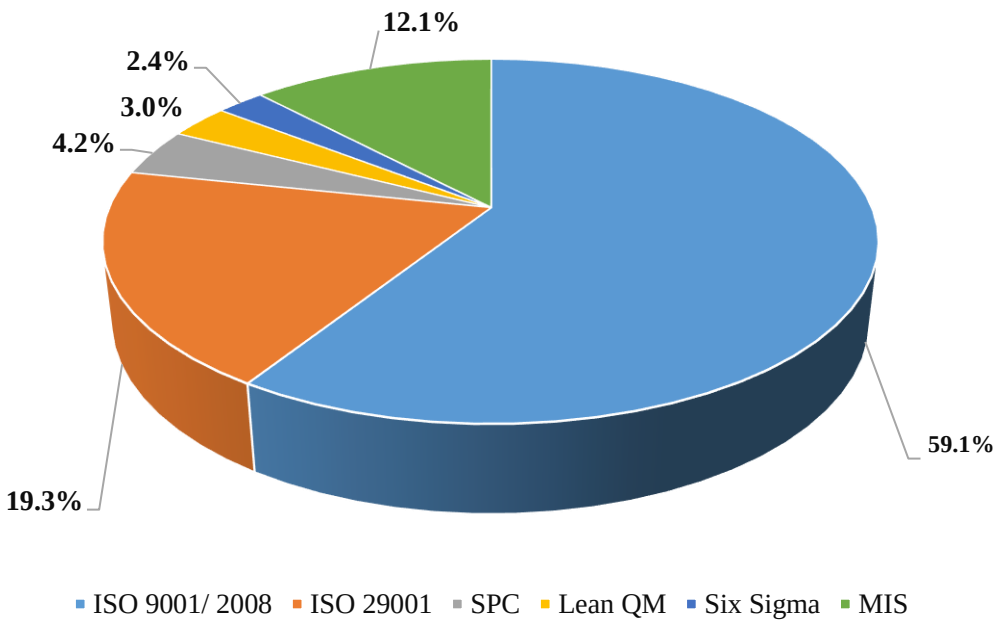


Figure 6.5 Frequency Distribution of Respondents' Regarding Quality Management Systems or Techniques

The pie chart clearly demonstrates that the majority of respondents (59.1%) knew about 'IS0 9001-2008' reflecting the fact that it was formally implemented in 2012. However, 19.3% are aware of the quality management system 'ISO 29001'.

One plausible explanation for the selection of 'ISO 29001' could be that the respondents understand and are aware that this system is related to the activities of oil and gas companies. 12.1% of the respondents indicated that they are aware of the Management Integrated System (MIS). This could be attributed to the tendency of the company to implant the culture management integrated system. The results have also shown that the Statistical Process Control (SPC), Lean Quality Management and Six Sigma are also known by 4.2%, 3.0% and 2.4% of the respondents, respectively. These results can be attributed to different viewpoints, perception, and the backgrounds of each participant.

6.2.2.3. The Conception of TQM

Figure 6.6 shows the responses to various statements related to the conceptualisation of TQM.

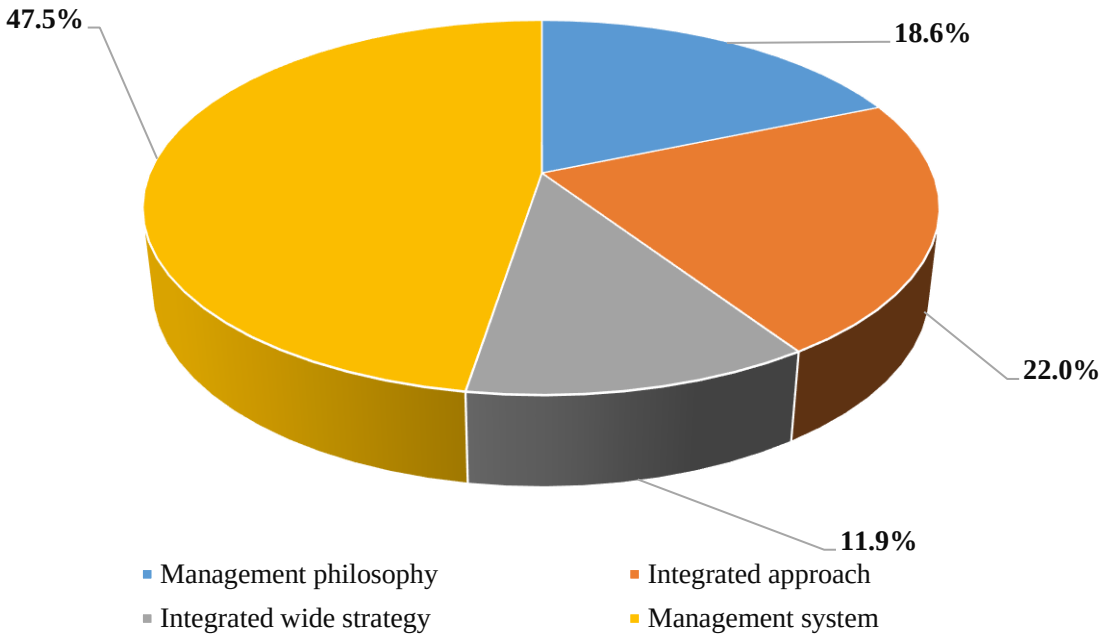


Figure 6.6 Frequency Distribution of Respondents Regarding the Conception of TQM

The primary data has indicated that most of the participants 47.4% have answered that "TQM is a management system, which comprise of values, techniques, and tools and that the overall goal of the system is enhanced value to customers by continually improving the organisational process", while 22.03% agree that TQM is, "an integrated approach towards achieving high-quality output through continuous improvement" The findings also indicate that 18.6% of the participants believe that TQM is a "management philosophy focusing on continuous improvement, customer satisfaction, employee involvement and supplier partnership" and the remaining 11.8% of the respondents believe that the TQM concept is "an integrated wide strategy for improving product and statement quality".

Notably, the findings have shown that most of the respondents chose a definition of TQM, which states that it is a management system comprising of values, techniques, and tools with the overall goal of the system being enhanced value to its customers through continual improvement of the organisational process. One of the reasons behind this selection might be the respondents' own understanding and perception of the term "*system*" as it covers and

integrates all aspects of the company. Nevertheless, the selection of different choices of TQM concepts by the respondents can be attributed to different viewpoints, perceptions, backgrounds and the nature of work activities related to each respondent.

6.2.2.4. The Importance of TQM

Figure 6.7 illustrates the respondents' perceptions of the importance of TQM for the company

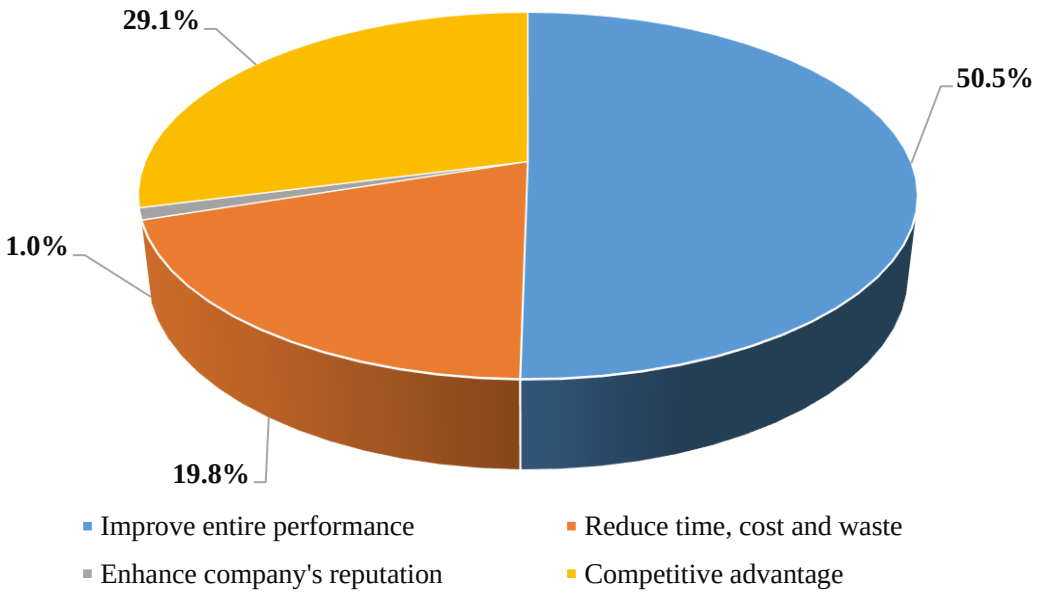


Figure 6.7 Frequency Distribution of Respondents Regarding the Importance of TQM

Most of the respondents (50.5%) agreed with the statement that, "*the importance of TQM implementation is an improvement of the company's entire performance*". This is attributed to the expected positive impact of TQM on the company's activities and operations.

Nevertheless, the findings have shown that almost 29.1% of the participants agree with the concept that TQM would provide a competitive advantage. This percentage could be linked to the respondents' perspective, in terms of the positive impact of TQM on enhancing the company's competitive position among other international companies that work in the same field in Iraq. Also, the results have revealed that 19.8% of the participants, have selected time, cost, and waste reduction as the most salient features of TQM. Noteworthy, very few participants (1.0%) saw TQM as enhancing the company's reputation towards its environment.

6.2.2.5. Familiarity with TQM Key Factors

This section deals with the familiarity of key factors required for TQM implementation in the company. Nine TQM factors were extracted from the literature review; these factors were tested in the questionnaire to identify to what extent the participants were familiar with them. A 5 point Likert scale was used to measure the responses which are presented in Table 6.1.

Table 6.1 The Level of Familiarity with the following TQM Key Factors or Principles in Percentage (%)

TQM Key factors	Not familiar	Low familiarity	Not sure	Familiarity	Strong familiarity
Top management commitment	0	1.5	3.9	45.7	48.9
Customer focus	0	2.6	6.4	43.1	47.8
Continuous improvement	0	3.2	5.5	42.7	48.6
Process management	0	3.1	8.4	43.7	43.8
Training and development	0	3.2	6.4	45.9	44.5
Quality culture	0	6.7	12.4	41.3	39.6
Policy and strategy	0	8.1	11.2	38.9	41.8
Employee empowerment	0	8.6	9.5	41.3	40.6
Communication	0	4.2	12.3	43.1	40.4

Top management commitment, customer focus, continuous improvement and training and development, recorded over 90% (a combined percentage) of familiarity and strong familiarity among the participants. In the same context, the remainder of the factors recorded over 80% (a combined percentage) of familiarity and strong familiarity among the respondents.

The results have illustrated that not one of the participants was unfamiliar with TQM key factors. Also, the results have shown that the highest percentage of low familiarity was recorded for *employee empowerment* and *participation* at 8.6%, while the lowest percentage of low familiarity was *top management commitment* at 1.5%. Overall, the main pattern visible from the participants is that the most popular response is of the "strong familiarity" category followed by "familiar" and "Not sure". On the other hand, a few respondents fell into the "low familiarity" category and none in "not familiar" category. Therefore, based on the above results it can be assumed that the participants have extensive familiarity and knowledge regarding the suggested key factors of TQM.

6.2.3. The Key Factors of TQM

This section deals with key factors required for TQM implementation in the company. The value of each TQM factor has been measured by a group of questions, that is built on five points of the Likert scale (1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= agree and 5= strongly agree). Therefore, to achieve the objective of both the research and this section, nine TQM key factors were highlighted and each one of them associated with specific questions, to identify and assess the features of each one. Moreover, to enhance the findings, the researcher followed a descriptive analysis by using ranking that is based on the highest percentage values, along with the highest mean value for each TQM key factor. Furthermore, the level of respondents' agreement for each statement is compared with the values of Table 4.6 in chapter 4.

6.2.3.1. Top Management Commitment

The data shows that both choices, "strongly agree" and "agree", for the statements below, ranged between slightly higher than 75% and 84.7% of the whole respondents to the survey. On the other hand, both the "disagree" and "strongly disagree" choices, had the lowest percentages with an average of 6.8% of the whole respondents. Whereas, the percentages of the "neutral" choice ranged from slightly higher than 9% for the first statement to slightly less than 17% for the third statement of the whole respondents to the survey. In addition, the results from Table 6.2 below are related to "top management commitment" and can be explained based on the average level of the respondents' agreement as follows:

Statement 1: "*Top management continually demonstrates its commitment to quality*". The mean value of agreement with this statement is 4.1%, with a standard deviation of 0.8%. With the percentage of respondents, who rated this statement as "strongly agree" and "agree" at 84.7% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

Table 6.2 Descriptive Statistics for Top Management Commitment

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Top management continually demonstrates its commitment to quality.	K1.1	30.5	54.2	9.1	3.6	2.5	4.1	0.8
Top management is inclined to allocate adequate time and resources for quality management.	K1.2	23.7	60.2	9.3	5.1	1.7	3.9	0.8
Top management uses performance indicators to ensure adequate performance.	K1.3	19.4	55.8	16.9	4.3	3.4	3.9	0.9

Statement 2: "*Top management is inclined to allocate adequate time and resources for quality management".* The mean value of agreement with this statement is 3.9%, with a standard deviation of 0.8%. While the percentage of participants, who rated this statement as both "strongly agree" and "agree", is slightly less than 84% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 3: "*Top management uses performance indicators to ensure adequate performance*". The mean value of agreement with this statement is similar to the previous statement, which is 3.9% with a standard deviation of 0.9. The percentage of participants, who rated this statement as "strongly agree" and "agree", is slightly higher than 75% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

6.2.3.2. Continuous Improvement

The figures show that both choices of "strongly agree" and "agree" for the statements of this section, ranged from between 74.4% and slightly less than 84%, for the statement: "The Company emphasises the best implementation of continuous improvement processes for all tasks at all levels", for all respondents to the survey. On the other hand, both "disagree" and "strongly disagree" choices, ranged from 4.1% to slightly higher than 9% for the statement: "The company emphasises improvement, rather than maintenance". Whereas, the percentages of the "neutral" choice were relatively high compared to the disagreement statements, with an average rate of 14.1% of the whole respondents to the survey. In addition, the results from

Table 6.3 below, refer to the statement of "continuous improvement", which can be explained based on the average level of the respondents' agreement as follows:

Statement 1: "*All company employees believe that quality improvement is their individual responsibility*". The mean value of agreement for this statement is the highest at 3.9% with a standard deviation of 0.8%. While the percentage of participants, who rated this statement as "strongly agree" and "agree" is 78.7% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 2: "*The Company emphasises improvement rather than maintenance*". The mean value of agreement with this statement is similar to the previous statement of 3.9%, with the standard deviation relatively high at 0.8%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is 74.4% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 3.4 to less than 4.2, making the level of agreement for this statement high.

Table 6.3 Descriptive statistics for Continuous Improvement

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
All company employees believe that quality improvement is their individual responsibility.	K2.1	20.3	58.4	14.4	4.2	2.5	3.9	0.8
The company emphasises improvement rather than maintenance.	K2.2	19.4	55.08	16.1	5.9	3.3	3.8	0.9
The company emphasises the best implementation of continuous improvement processes for all tasks at all levels.	K2.3	23.7	60.1	11.8	2.5	1.6	4.0	0.7

Statement 3: "*The company emphasises the best implementation of continuous improvement processes for all tasks at all levels*". The mean value of agreement with this statement is relatively higher than the previous statements, with an average of 4.0% and a standard deviation of 0.7%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is slightly less than 84% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

6.2.3.3. Process Management

The data gathered demonstrates that both choices of "strongly agree" and "agree" for the statements below, ranged from between 78.7% and slightly higher than 83%, with an average of 80.8% of the whole respondents to the survey. On the other hand, both the "disagree" and "strongly disagree" choices, ranged from slightly higher than 4% to slightly less than 7%. While the percentages of the "neutral" choice ranged from between 12.7% and 14.4%, of the whole respondents to the survey. In addition, the results from Table 6.4 below, refer to the statement "process management", which can be explained based on the average level of the respondents' agreement as follows.

Table 6.4 Descriptive statistics for Process Management

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
The company has appropriate management measures to control and improve the production or delivery process.	K3.1	20.3	60.1	13.5	4.2	1.6	3.9	0.8
The management provides relevant measurements to cover the key processes in the company.	K3.2	20.3	58.4	14.4	4.3	2.5	3.8	0.8
The company uses and follows clear working procedures and instructions.	K3.3	25.4	57.7	12.7	3.3	0.84	4.0	0.7

Statement 1: *"The Company has appropriate management measures to control and improve the production or delivery process".* The mean value of agreement with this statement is 3.9% with a standard deviation of 0.8%. The percentage of the participants, who rated this statement as "strongly agree", is 80.5% of the whole respondents to the survey. According to the Likert scale interpretation the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 2: *"The management provides relevant measurements to cover the key processes in the company"*. The mean value of agreement with this statement is 9.8% with a similarity to the previous standard deviation of 0.8%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is 78% of the whole respondents. According to the Likert scale interpretation, the mean value ranges from 3.4 to less than 4.2, making the level of agreement for this statement high.

Statement 3: *"The company uses and follows clear working procedures and instructions"*. The mean value of agreement with this statement is 4.0%, with the smallest standard deviation of 0.7%, compared with previous statements. The percentage of participants, who rated this statement as "strongly agree" and "agree" is slightly higher than 83% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

6.2.3.4. Customer Focus

The data displays that both choices "strongly agree" and "agree" for the statements below, ranged from between slightly higher than 82% and slightly higher than 88%, with an average of 84.7% of the whole respondents to the survey. On the other hand, both the "disagree" and "strongly disagree" choices ranged from slightly higher than 4% to slightly less than 8%. Whereas, the percentages of the "neutral" choice ranged from between 7.6% and slightly less than 12%, with an average of 9.3% of the whole respondents to the survey. In addition, the result from Table 6.5 below, refer to the statement of "customer focus", which can be explained based on the average level of the respondents' agreement as follows:

Statement 1: *"The company determines current and future customer requirements and expectations".* The mean value of agreement for this statement is the highest at 4.0%, with a standard deviation of 0.7. The percentage of participants, who rated this statement as "strongly agree" and "agree" is slightly higher than 88% of the whole respondents to the survey. According to the Likert scale interpretation the mean value ranges from between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 2: *"The company understands the needs of both its customers and markets well".* The mean number of agreement with this statement is relatively similar to the previous statement at 3.97%, with a higher standard deviation of 0.88%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is slightly higher than 82% of the whole respondents. According to the Likert scale interpretation, the mean value ranges from 3.4 to less than 4.2, making the level of agreement for this statement high.

Statement 3: *"The company is fully aware of market trends".* The mean value of agreement with this statement is similar to the second statement, at 3.9%, with a similar standard deviation of 0.86%. The percentage of participants, who rated this statement as "strongly agree" and "agree", is around the average with slightly less than 84% of the whole

respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 3.4 and less than 4.20, making the level of agreement for this statement high.

Table 6.5 Descriptive statistics for Customer Focus

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
The company determines current and future customer requirements and expectations.	K4.1	26.3	61.8	7.6	2.5	1.7	4.0	0.7
The company understands the needs of both its customers and markets well.	K4.2	24.5	57.6	11.8	2.5	3.3	3.9	0.8
The company is fully aware of market trends.	K4.3	23.7	60.2	8.4	5.1	2.5	3.9	0.8

6.2.3.5. Training and development

With regards to training and development, the data shows dissimilar results compared to the previous sections, with both choices of "disagree" and "strongly disagree" for the statements below recording the highest percentages. Ranging from between 48.2% and slightly higher than 54%, with an average of 51.8% of the whole respondents to the survey. While, both the "strongly agree" and "agree" choices ranged from between 29.7% and slightly higher than 32%. Whereas, the percentages of the "neutral" choice, ranged from between 15.2% and 19.5%, with an average of 17.2% of the whole respondents to the survey. In addition, the results from Table 6.6 below, refer to the statements of "training and development", which can be explained based on the average level of the respondents' agreement as follows:

Statement 1: "*Quality-related training given to managers, supervisors and employees*". The mean value of agreement with this statement is 3.1%, with a high standard deviation of 1.1%. The percentage of participants, who rated this statement as "disagree" and "strongly disagree", is slightly higher than 54% of the total number of respondents to the survey. According to the Likert scale interpretation the mean value ranges from between 2.6 and less than 3.4, showing agreement for this statement as moderate.

Statement 2: "*Resources are available to cover employee training needs and development*". The mean value of agreement with this statement is the highest value at 2.8%, with a standard deviation of 0.9%. The percentage of participants, who rated this statement as "disagree" and "strongly disagree", is slightly higher than 48% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 2.6 to less than 3.4 making agreement for this statement moderate.

Table 6.6 Descriptive statistics for Training and development

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Quality-related training given to managers, supervisors and employees.	K5.1	11.8	18.6	15.2	33.8	20.3	3.1	1.1
Resources are available to cover employee training needs and development.	K5.2	14.4	17.8	19.5	39.8	8.4	2.8	0.9
The company evaluates training outputs on a regular basis.	K5.3	13.6	16.1	16.9	37.2	16.1	2.7	0.9

Statement 3: "*The company evaluates training outputs on a regular basis*". The mean value of agreement with this statement is 2.7%, with a standard deviation of 0.9%. The percentage of participants, who rated this statement as "disagree" and "strongly disagree", is 53.3% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 2.6 and less than 3.4, making agreement for this statement moderate.

6.2.3.6. Quality Culture

The data related to quality culture shows that both the choices of "strongly agree" and "agree" for the statements below, were the largest, when compared to the others with an average of 76%. While the highest percentage is slightly less than 78% of the whole respondents to the survey. On the other hand, both the "disagree" and "strongly disagree" choices, had the lowest percentages in this section with 6.7% and 7.5% for the first and third statements of the whole respondents to the survey. Whereas, the "neutral" choice percentages ranged from slightly higher than 15% and slightly less than 18%, of the whole respondents to the survey. In

addition, the results from the Table 6.7 refer to the statements of "quality culture", which can be explained based on the average level of participants' agreement as follows:

Table 6.7 Descriptive statistics for Quality Culture

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Changing traditional culture is one of the most important steps towards successful implementation of TQM in the company.	K6.1	37.3	40.6	15.1	4.3	2.5	4.0	0.9
Adopting TQM culture will assist the company to fit with the changes in the business environment.	K6.2	33.8	39.8	17.9	5.9	2.5	3.9	0.99
There is an ongoing creation of quality culture among employees.	K6.3	24.6	51.7	16.1	4.2	3.3	3.8	0.8

Statem*ent* 1*:* "*Changing traditional culture is one of the most important steps towards successful implementation of TQM in the company*". The mean value of agreement with this statement is the highest at 4.0%, with a standard deviation of 0.9%. The percentage of participants, who rated this statement as "strongly agree" and "agree", is relatively less than 80% of the whole respondents to the survey. According to the Likert scale interpretation the mean value ranges from 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 2*:* "*Adopting TQM culture will assist the company to fit with the changes in the business environment*". The mean value of agreement with this statement is 3.9%, with the highest standard deviation of 0.99%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is 73.6% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 3.4 to less than 4.2, making the level of agreement for this statement high.

Statement 3*:* "*There is an ongoing creation of quality culture among employees*". The mean value of agreement with this statement is the lowest at 3.8% with the highest standard deviation of 0.8%. The percentage of participants who rated this statement as "strongly agree" and "agree" is 76.3% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 3.4 and less than 4.2, making the level of agreement for this statement high.

6.2.3.7. Policy and Strategy

For the statements of policy and strategy, the data displays completely different results from the previous statements, where both choices "disagree" and "strongly disagree" had the highest percentages. Ranging from between 53.3% and slightly higher than 65%, with an average of 59 % of the whole respondents to the survey. On the other hand, both "agree" and "strongly agree" choices ranged slightly higher at between 14% and 36.6%, with an average of relatively less than one quarter of the whole respondents to the survey. While, the percentages of the "neutral" choice ranged from slightly higher than 10%, to about one quarter of the whole respondents to the survey. In addition, the results from Table 6.8 below, refer to the statements of "policy and strategy", which can be explained based on the average level of respondents' agreement as follows:

Statement 1: "*The concept of quality management is reflected in the company's values, vision and mission*". The mean value of agreement with this statement is relatively low at 2.7%, with a standard deviation of 0.9%. The percentage of participants, who rated this statement as "disagree" and "strongly disagree" is slightly higher than 65% of the whole respondents to the survey. According to the Likert scale interpretation the mean value ranges from 2.6 and less than 3.4, indicates the level of agreement for this statement as moderate.

Table 6.8 Descriptive statistics for Policy and Strategy

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
The concept of quality management is reflected in the company's values, vision and mission.	K7.1	9.3	15.3	10.2	39.7	25.4	2.7	0.9
The company's staff, particularly the middle and junior managers, have clear knowledge about policy and strategy related to quality management.	K7.2	16.9	17.7	11.8	33.8	19.5	2.8	0.9
The policy and strategy related to quality management is managed and reviewed on a regular basis.	K7.3	6.5	7.6	25.6	48.3	11.8	2.7	0.8

Statement 2: "*The company's staff, particularly the middle and junior managers, have clear knowledge about policy and strategy related to quality management*". The mean value of agreement for this statement is 2.8%, with a standard deviation of 0.9%. The percentage of participants, who rated this statement as "disagree" and "strongly disagree" is slightly higher than 65% of the total sample. According to the Likert scale interpretation, the mean value ranges from 2.6 to less than 3.4, making the level of agreement for this statement moderate.

Statement 3: "*The policy and strategy related to quality management is managed and reviewed on a regular basis*". The mean value of agreement with this statement is 2.7%, with a standard deviation of 0.8%. The percentage of participants, who rated this statement as "disagree" and "strongly disagree" is slightly higher than 60% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 2.6 and less than 3.4, making the level of agreement for this statement moderate.

6.2.3.8. Employee Empowerment

In relation to employee empowerment, the figures demonstrate comparable results to the previous statement, where both the choices of "disagree" and "strongly disagree" had the highest percentages, ranging from 41.5% to 58.4% for the statements of; "*Top management involves middle and junior managers in decision making*" and "employees have authority in their positions to make necessary actions when required", respectively with an average of 50% of the whole respondents to the survey.

On the other hand, both the “agree” and “strongly agree” choices ranged from slightly higher than 27% to 35.5% of the whole respondents to the survey. In addition, the percentages of the “neutral” choice ranged between slightly less than 12% and slightly less than 23% with an average of 18.6%. In addition, the result from Table 6.9 are relevant to the statements of “employee empowerment”, which can be explained based on the average level of respondents' agreement as follows:

Statement 1: *“Employees have authority in their positions to make necessary actions when required”.* The mean value of agreement with this statement is 2.6% with a standard deviation of 0.9%. The percentage of participants, who rated this statement as “disagree” and “strongly disagree” are the highest at 58.4% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from between 2.6 and less than 3.4, making agreement for this statement moderate.

Table 6.9 Descriptive statistics for Employee Empowerment

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Employees have authority in their positions to make necessary actions when required.	K8.1	13.5	16.1	11.9	38.9	19.5	2.6	0.9
The management motivates employees to suggest and create ideas for work improvement.	K8.2	11.9	15.2	21.1	33.05	18.6	2.7	0.9
Top management involves middle and junior managers in decision making.	K8.3	15.2	20.3	22.9	27.1	14.4	2.9	0.9

Statement 2: *“The management motivates employees to suggest and create ideas for work improvement”.* The mean value of agreement with this statement is 2.7% with a standard deviation of 0.9%. The percentage of participants, who rated this statement as “disagree” and “strongly disagree” is 51.6% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 2.6 to less than 3.4, making the agreement for this statement moderate.

Statement 3: *“Top management involves middle and junior managers in decision making”.* The mean value of agreement with this statement is 2.9% with a standard deviation of 0.8%. The percentage of participants, who rated this statement as “disagree” and “strongly disagree” is 41.5% of the whole respondents to the survey. According to the Likert scale

interpretation, the mean value ranges from between 2.6 and less than 3.4, making the agreement for this statement moderate.

6.2.3.9. Communication

Regarding communication, the statistics show that both choices of "strongly agree" and "agree" for the statements below, had the largest percentages with an average of 81.6% and the highest at 89.0% relating to the statement of; "the company uses effective means of communication in its activities" of the whole respondents to the survey. On the other hand, both the "disagree" and "strongly disagree" choices, had low percentages that ranged from slightly higher than 5% to 18.5% for the statement of; "*There is effective coordination in terms of exchanging and submitting the information between different managerial levels in the company*". Whereas, the percentages of the "neutral" choice ranged from 5.7% to 7.6%, with an average rate of 6.4% of the whole respondents to the survey. Moreover, the results from Table 6.10 below, are about the statements of "communication", which can be explained based on the average level of respondents' agreement as follows:

Statement 1: *"There is effective coordination in terms of exchanging and submitting the information between different managerial levels in the company".* The mean value of agreement for this statement is 3.8%, with the highest standard deviation of 1.1%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is 73.7% of the whole respondents to the survey. According to the Likert scale interpretation the mean value ranges from 3.4 to less than 4.2, making the level of agreement for this statement high.

Table 6.10 Descriptive Statistics for Communication

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
There is effective coordination in terms of exchanging and submitting the information between different managerial levels in the company.	K9.1	35.6	38.1	7.6	10.1	8.4	3.8	1.1
The company gets the required information from varied internal and external sources in due time.	K9.2	33.1	49.1	5.6	9.3	2.8	4.0	0.9
The company uses effective means of communication in its activities.	K9.3	27.9	61.0	5.9	3.4	1.7	4.1	0.7

Statement 2: "*The company gets the required information from varied internal and external sources in due time*". The mean value of agreement with this statement is higher than the previous statement with a value of 4.0% and a low standard deviation of 0.9%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is slightly higher than 82% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 3.4 to less than 4.2, making the level of agreement for this statement high.

Statement 3: "*The company uses effective means of communication in its activities*". The mean value of agreement with this statement is the highest at 4.1%, with the lowest standard deviation of 0.878%. The percentage of participants, who rated this statement as "strongly agree" and "agree" is slightly lower than 89% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

6.2.4. Barriers to Implementing TQM in the Company

This section seeks to explore and determine the barriers that could prevent successful implementation of TQM in the company. Therefore, to achieve the objective of both the research and this section, seven possible barriers were highlighted and each one of them was associated with specific questions to identify and assess the features of that barrier. Additionally, to enhance the findings, the researcher followed a descriptive analysis by using ranking that is based on the highest percentage values, along with highest mean value for each potential TQM barrier. Moreover, the level of respondents' agreement for each statement is compared with the values of Table 4.6 in chapter 4.

6.2.4.1. Poor Understanding and Insufficient Knowledge of TQM

The data related to the statement of poor understanding and insufficient knowledge of TQM shows that choices of "strongly agree" and "agree" for the below statements ranged between slightly higher than 60% and approximately 73% of the whole respondents to the survey. On the other hand, both the "strongly disagree" and "disagree" choices had the lowest percentages, that ranged from slightly higher than 10% for the statement of "There are difficulties in learning and implementing TQM" to 20.2% for the statement of "Poor understanding of the purposes and the benefits of TQM". Whereas, the percentages of the "neutral" choice were relatively high with an average of 17.3% of the whole respondents to the survey. In addition, the results from Table 6.11 below, are about the "poor understanding

and insufficient knowledge" statement, which can be explained based on the average level of respondents' agreement as follows:

Statement 1: *"Poor understanding of the purposes and the benefits of TQM".* The mean value of agreement with this statement is 3.6%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly higher than 61% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 2: *"There is unclear awareness of TQM in the company".* The mean value of agreement with this statement is 3.7%, with a standard deviation of 0.7%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly less than 68% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 3: *"There are difficulties in learning and implementing TQM".* The mean value of agreement with this statement is 3.8%, with a standard deviation of 0.7%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 72.8% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

Table 6.11 Descriptive statistics for Poor Understanding and Insufficient Knowledge of TQM

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Poor understanding of the purposes and the benefits of TQM.	B1.1	23.8	37.3	18.6	17.7	2.5	3.6	0.9
There is unclear awareness of TQM in the company.	B1.2	22.1	45.8	16.5	11.8	3.6	3.7	0.7
There are difficulties in learning and implementing TQM.	B1.3	27.9	44.9	16.9	4.2	5.9	3.8	0.7

6.2.4.2. Resistance to Change

With regards to the data related to the statements of resistance to change, the choices of "strongly agree" and "agree" for the statements below ranged from between 51.7% and 79.6% with an average of 68.3 % of the whole respondents to the survey. On the other hand, both the "strongly disagree" and "disagree" choices, ranged between slightly less than 12% and slightly higher than 28%. Whereas, the "neutral" choice had a low percentage with an average of 14% of the whole respondents to the survey. In addition, the results from Table 6.12 below, regarding "resistance to change" can be explained based on the average level of respondents' agreement as follows:

Statement 1: "*Employees prefer to follow instructions rather than take initiatives and create proposals in their jobs".* The mean value of agreement with this statement is 4.2%, with a standard deviation of 0.8%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 79.6% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 2: "*It is difficult to change the existing attitude of middle and junior management*". The mean value of agreement with this statement is 3.7%, with a lower than previous standard deviation of 0.6%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 73.6% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, resulting in the level of agreement for this statement being high.

Table 6.12 Descriptive statistics for Resistance to Change

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Employees prefer to follow instructions rather than take initiatives and create proposals in their jobs.	B2.1	35.5	44.1	8.4	4.3	7.6	4.0	0.8
It is difficult to change the existing attitude of middle and junior management.	B2.2	21.1	52.5	13.5	6.7	5.9	3.7	0.6
Most of the staff are resistant to being involved in training and development programmes.	B2.3	18.6	33.1	20.3	15.2	12.7	3.2	0.9

Statement 3: "*Most of the staff are resistant to being involved in training and development programmes".* The mean value of agreement with this statement is 3.2%, with a higher than previous standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 51.7% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 2.6 and less than 3.4, making the level of agreement for this statement moderate.

6.2.4.3. Lack of Delegation of Authority and Responsibility

The data related to this statement shows that the choices of "strongly agree" and "agree" ranged between 65.3% to slightly higher than 71% of the whole respondents to the survey. On the other hand, both the "strongly disagree" and "disagree" choices ranged between slightly higher than 16% and slightly higher than 21%. In addition, the percentages of the "neutral" choice had a relatively high percentage with an average of 14% of the whole respondents to the survey. Moreover, the result from Table 6.13 refer to the "*Delegation of authority and responsibility*", which can be explained based on the average level of respondents' agreement as follows:

Statement 1: *"Lack of delegated authority from the top management to other managerial levels".* The mean value of agreement with this statement is 3.7%, with a standard deviation of 0.7%. The percentage of respondents, who rated this statement as "strongly agree" and "agree", is 65.3% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, as a result the level of agreement for this statement is high.

Table 6.13 Descriptive statistics for Lack of Delegation Authority and Responsibility

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Lack of delegated authority from the top management to other managerial levels.	B3.1	26.4	38.9	13.5	11.8	9.3	3.7	0.7
Work responsibilities are not delegated at the company.	B3.2	23.7	43.2	16.1	12.7	4.2	3.6	0.9
Managers at middle and junior levels follow instructions more than creating proposals in their jobs.	B3.3	34.7	36.4	12.7	9.4	6.7	3.8	0.7

Statement 2: *"Work responsibilities are not delegated at the company".* The mean value of agreement with this statement is 3.6%, with a high standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly less than 67% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 3: "*Managers at middle and junior levels follow instructions more than creating proposals in their jobs".* The mean value of agreement with this statement is 3.8%, with a standard deviation of 0.7%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly higher than 71% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

6.2.4.4. Lack of Teamwork

The data related to the statement of "lack of teamwork" confirms that the choices of "strongly agree" and "agree" for the below statements, ranged from 66% to slightly higher than 70% of the whole respondents to the survey. On the other hand, both the "strongly disagree" and "disagree" choices ranged between 20.2% and slightly higher than 26% for the statement of *"Lack of effective teams or team building skills".* Whereas, the percentages for the "neutral" choice ranged between 7.7% and slightly less than 12% of the whole respondents to the survey. In addition, the results from the Table 6.14 below, relating to the statement "lack of

teamwork", can be explained based on the average level of respondents' agreement with them as follows:

Statement 1: *"Weaknesses of cross-functional cooperation between departments".* The mean value of agreement with this statement is 3.6%, with a standard deviation of 0.7%. The percentage of respondents, who rated this statement as "strongly agree" and agree" is 70.1% of the whole respondents. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating that the level of agreement for this statement is high.

Statement 2: *"Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team".* The mean value of agreement with this statement is 3.6%, with a standard deviation of 0.8%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 67.7% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating a high level of agreement for this statement.

Table 6.14 Descriptive statistics for Lack of Teamwork.

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Weaknesses of cross-functional cooperation between departments.	B4.1	22.7	47.4	9.4	14.4	5.9	3.6	0.7
Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team.	B4.2	19.4	48.3	11.9	13.5	6.7	3.6	0.8
Lack of effective teams or team building skills.	B4.3	20.3	45.7	7.7	17.7	8.4	3.5	0.8

Statement 3: *"Lack of effective teams or team building skills".* The mean value of agreement with this statement is 3.5%, with a standard deviation of 0.8%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is exactly 66% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating a high level of agreement for this statement.

6.2.4.5. Lack of Experts

In accordance with the data related to the statement of a lack of experts, the choices of "strongly agree" and "agree" for the below statements, ranged from between slightly higher than 72% and 80.4% of the whole respondents to the survey. In contrast, both "strongly disagree" and "disagree" ranged between 9.4% and slightly less than 13%. In addition, the percentages of the "neutral" choice had a relatively high percentage, from 8.4% for the first statement to 17.8% of the whole respondents to the survey. Moreover, the results from Table 6.15 below, relate to the statement of a "*Lack of experts*", which can be explained based on the average level of respondents' agreement as follows:

Statement 1: *"Lack of expertise and specialists in TQM".* The mean value of agreement with this statement is 3.9 with a relatively low standard deviation of 0.7%. The percentage of respondents, who rated this statement as "agree" and "strongly agree" is the highest at 80.4% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4and less than 4.2, so the level of agreement for this statement is high.

Table 6.15 Descriptive statistics for Lack of TQM Experts

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Lack of expertise and specialists in TQM.	B5.1	31.3	49.1	8.4	5.9	5.2	3.9	0.7
Shortage of knowledge and skills to implement TQM.	B5.2	50.6	26.2	10.1	7.8	5.1	4.1	0.9
There are wrong people in the wrong position.	B5.3	23.7	48.4	17.8	5.2	4.2	3.9	0.8

Statement 2: *"Shortage of knowledge and skills to implement TQM".* The mean value of agreement with this statement is 4.1%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 76.8% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, thus the level of agreement for this statement is high.

Statement 3: *"There are wrong people in the wrong position".* The mean value of agreement with this statement is 3.9%, with a standard deviation of 0.8%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly higher than 72% of the whole respondents to the survey. According to the Likert scale interpretation, the

mean value ranges between 3.4 and less than 4.2, indicating that the level of agreement for this statement is high.

6.2.4.6. Bureaucratic Management

The data related to the statement of bureaucratic management shows that the choices of "strongly agree" and "agree" for the below statements ranged from 55% to slightly higher than 71% of the whole respondents to the survey. On the other hand, both "strongly disagree" and "disagree" ranged between 18.7% and 25.4% of the whole respondents. Whereas, the percentages of the "neutral" choice had a relatively high percentage with an average of 13.5% of the whole respondents to the survey. In addition, the results from Table 6.16 refer to the statement of "*Bureaucratic management*", and can be explained based on the average level of respondents' agreement as follows:

Table 6.16 Descriptive statistics for Bureaucratic Management Style

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
The bureaucratic management style is prevalent.	B6.1	11.8	43.2	19.4	16.1	9.3	3.3	0.8
The management style does not encourage and motive the staff to be innovative and efficient.	B6.2	31.9	37.2	11.1	10.3	9.4	3.7	0.8
The company focuses on the results more than the process.	B6.3	22.8	48.3	10.1	7.6	11.1	3.6	0.7

Statement 1: *"The bureaucratic management style is prevalent".* The mean value of agreement with this statement is 3.3%, with a standard deviation of 0.8%. The percentage of respondents, who rated this statement as "agree" and "strongly agree" is 55% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, resulting in the level of agreement for this statement being high.

Statement 2: *"The management style does not encourage and motivate the staff to be innovative and efficient".* The mean value of agreement with this statement is 3.7%, with a standard deviation of 0.8%. The percentage of respondents, who rated this statement as "agree" and "strongly agree" is slightly higher than 69% of the whole respondents to the

survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high.

Statement 3: *"The company focuses on the results more than the process".* The mean value of agreement with this statement is 3.6%, with a relatively low standard deviation of 0.7%. The percentage of respondents, who rated this statement as "agree" and "strongly agree" is slightly higher than 71% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, hence the level of agreement for this statement is high.

6.2.4.7. Poor Ineffective Training and Development

In relation to poor ineffective training and development, the results demonstrate that the choices of "strongly agree" and "agree" for this statement ranged between 53.3% and 75.4% of the whole respondents to the survey. While, both the "strongly disagree" and "disagree" choices ranged from between 16.8% and slightly less than 33% of the whole respondents to the survey. Moreover, the results clarified that the percentages for the "neutral" choice were 6.7% for the second statement and 13.5% for the third statement of the whole respondents to the survey. In addition, the results from Table 6.17 relate to the statement of "poor ineffective training", which can be explained based on the average level of respondents' agreement as follows:

Statement 1: *"There is a shortage of qualified trainers at the company".* The mean value of agreement with this statement is 3.8%, with a standard deviation of 0.8%. With the percentage of respondents, who rated this statement as "agree" and "strongly agree" at 75.4% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, so the level of agreement for this statement is high.

Table 6.17 Descriptive statistics for Poor Ineffective Training and Development

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
There is a shortage of qualified trainers at the company.	B7.1	31.3	44.1	7.6	10.1	6.7	3.8	0.8
There are difficulties in achieving training targets at the company.	B7.2	28.8	34.7	6.7	18.6	11.1	3.5	0.9
Lack of modern training methods at the company.	B7.3	25.4	27.9	13.5	19.4	13.5	3.3	0.9

Statement 2: *"There are difficulties in achieving training targets at the company".* The mean value of agreement with this statement is 3.5% with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "agree" and "strongly agree" is high at 63.5% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, as a result the level of agreement for this statement is high.

Statement 3: *"Lack of modern training methods at the company".* The mean value of agreement with this statement is 3.3%, with a standard deviation of 0.9%. With the percentage of respondents, rating this statement as "agree" and "strongly agree" higher than 53% of the whole respondents to the survey. In accordance with the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, thus the level of agreement for this statement is high.

6.2.5. The Benefits of TQM Implementation

The aim of this section is to present and analyse the data obtained from the respondents, regarding the benefits that the company could achieve through TQM implementation. Five main benefits have been emphasised and measured using fifteen subsection questions, built on five points of the Likert scale. Therefore, to support the results, the researcher followed a descriptive analysis by using the mean values, standard deviation and ranking. Based on the highest percentage, along with the highest mean-value, and the level of respondents' agreement for each statement compared with the values of Table 4.6 in chapter 4.

6.2.5.1. Improving Customer Satisfaction

According to the data regarding improving customer satisfaction, the choices of "strongly agree" and "agree" for this statement, ranged from 77.8% to slightly higher than 88% of the whole respondents to the survey. On the other hand, both the "strongly disagree" and "disagree" choices ranged from between 9.2% and 12.7% for the second and first statements, respectively. Whereas, the percentages of the "neutral" choice ranged between 2.4% and 9.3% for the third and the first statements of the whole respondents to the survey. In addition, the results from Table 6.18 below, refer to the statement of "improving customer satisfaction", which can be clarified based on the average level of employee's agreement as follows:

Statement 1: *"Enhance the relationship between the company and its customers"*. The mean value of agreement with this statement is 3.9%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is relatively low at 78% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating that the level of agreement for this statement high.

Table 6.18 Descriptive statistics for Customer Satisfaction

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Enhance the relationship between the company and its customers.	F1.1	26.2	51.6	9.3	7.6	5.1	3.9	0.9
Reduce customers' complaints.	F1.2	33.8	53.3	3.3	6.7	2.5	4.1	0.9
Meeting customers' needs and requirements.	F1.3	40.7	47.4	2.4	5.1	4.3	4.1	1.0

Statement 2: *"Reduce customers' complaints".* The mean value of agreement with this statement is higher than the previous with 4.1%, and a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly higher than 87% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating a high level of agreement for this statement.

Statement 3: *"Meeting customers' needs and requirements".* The mean value of agreement with this statement is 4.1%, with a high standard deviation of 1.1%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly higher than 88% of the total respondents to the survey. In accordance with the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, so the level of agreement for this statement is high.

6.2.5.2. Improving Employee Satisfaction

The statistics related to the statements of improving employee satisfaction, show that the choices of "agree" and "strongly agree" had the largest percentages and the data was distributed equally among the three statements, ranging from 62.6% for the second statement to 84.7 % for the first statement of the whole respondents to the survey. On the other hand, both "strongly disagree" and "disagree" choices had low percentages that ranged from slightly lower than 11% for the first statement to slightly higher than 27% of the whole respondents. Whereas, the percentages of the "neutral" choice ranged from 4.2% to slightly higher than 10% of the whole respondents. Moreover, the results from Table 6.19 below, about "*Improving employee satisfaction*" are explained based on the average level of respondents' agreement as follows:

Table 6.19 Descriptive statistics for Improving Employee Satisfaction

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Increase employees' motivation to update their skills and knowledge.	F2.1	29.6	55.1	4.2	8.4	2.5	4.0	0.9
The average number of employees' complaints is decreasing.	F2.2	15.2	47.4	10.1	17.8	9.3	3.4	1.2
Improve working environment.	F2.3	36.4	44.9	5.9	9.4	3.3	4.0	0.9

Statement 1: *"Increase employee's motivation to update their skills and knowledge".* The mean value of agreement is 4.0%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 84.7% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges from 3.4 to less than 4.2, indicating a high level of agreement for this statement.

Statement 2: *"The average number of employees' complaints is decreasing".* The mean value of agreement is 3.4, with a relatively high standard deviation of 1.2. The percentage of respondents, who rated this statement as "strongly agree" and "agree" was 62.6% of the total respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and 4.2, indicating that the level of agreement for this statement being high, although the standard deviation of 1.2 indicated that some of these responses might be closer to neutral than to agree.

Statement 3: *"Improve working environment".* The mean value of agreement is 4.0%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "disagree" and "strongly disagree" is 81.3% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating that the level of agreement for this statement is high.

6.2.5.3. Eliminating Waste and Defects

With regards to the Table related to the statements of eliminating waste and defects, the choices of "strongly agree" and "agree" ranged between 70.3% and slightly less than 72% for the third and first statements, respectively. On the other hand, both the "disagree" and "strongly disagree" choices, had low percentages that ranged from 11.7% to slightly less than 17% of the whole respondents. Whereas, the percentages of the "neutral" choice ranged from 9.3% to 13.5% of the whole respondents of the survey. In addition, the result from Table 6.20 below, refer to the statement of "eliminating waste, improving resources and outputs", which can be explained based on the average level of respondents' agreement as follows:

Table 6.20 Descriptive statistics for Eliminating Waste and Defects

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Enhancing the necessary measurements for reducing waste and interruptions related to daily work activities.	F3.1	29.6	42.3	13.5	8.4	5.9	3.8	1.1
Decreasing the average number of defects and errors in work activities.	F3.2	27.3	51.6	9.3	7.5	4.2	3.9	0.8
Improving effective utilisation of company's resources	F3.3	23.7	46.6	12.7	10.2	6.7	3.7	0.9

Statement 1: *"Enhancing the necessary measurements for reducing waste and interruptions related to daily work activities".* The mean value of agreement for this statement is 3.8, with a relatively high standard deviation of 1.1. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is high at 72% of the total respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2 indicating that the level of agreement for this statement is generally high although with a standard deviation as high as 1.1, some of these respondents may fall into the disagree range.

Statement 2: *"Decreasing the average number of defects and errors in work activities".* The mean value of agreement for this statement is 3.9% with a standard deviation of 0.8%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 78.9% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating a high level of agreement for this statement.

Statement 3: *"Improving effective utilisation of company resources".* The mean value of agreement with this statement is 3.7%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 70.3% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating that the level of agreement for this statement is high.

6.2.5.4. Improving Financial Performance

Regarding the data related to the statements of improving financial performance, the choices of “strongly agree” ranged between 60.2% and slightly higher than 72% for the first and second statements, respectively. On the other hand, both the “disagree” and “strongly disagree” choices had low percentages that ranged from 16.7% to slightly higher than 26.1%. Whereas, the percentages of the “neutral” choice ranged between 11.1% and 13.5, with an average of 12.4% of the whole respondents to the survey. In addition, the results from Table 6.21 relate to the statement of “improving financial performance”, described based on the average level of respondents' agreement as follows:

Statement 1: *“Enhancement of the company's profitability”*. The mean value of agreement with this statement is 3.4%, with a standard deviation of 0.8%. With the percentage of respondents, rating this statement as “strongly agree” and “agree” at 62.2% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, reveals that the level of agreement for this statement is high.

Statement 2: *“The business growth rate will improve in the market”*. The mean value of agreement of this statement is 3.7%, with a relatively high standard deviation of 1.1%. The percentage of respondents, who rated this statement as “strongly agree” and “agree” is higher with respect to the first and third statements, with 72.1% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, making the level of agreement for this statement high although a note is made of the high standard deviation.

Table 6.21 Descriptive statistics for Improving Financial Performance

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Enhancement of the company's profitability.	F4.1	22.1	38.1	13.5	17.7	8.4	3.4	0.8
The business growth rate will improve in the market.	F4.2	27.2	44.9	11.1	10.1	6.6	3.7	1.1
Increase company's market share.	F4.3	19.4	46.5	12.8	13.5	7.6	3.5	0.8

Statement 3: "*Increase company's market share".* The mean value of agreement for this statement is 3.5%, with a standard deviation of 0.8%. With the percentage of respondents rating this statement as "strongly agree" and "agree" at slightly less than 70% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating that the level of agreement for this statement is high.

6.2.5.5. Decreasing the Company's Impact on the Environment

The data related to the statements of the decreasing the company's impact on the environment indicates that the choices of "strongly agree" and "agree" ranged from slightly higher than 76% for the first statement of "*contribute to establishing good relations within the community, where the company carries out its activities*". To slightly less than 83% for the third statement of "*enhance the contribution of the company in social and environmental activities as part of the company's social and environmental responsibility*". On the other hand, both the "strongly disagree" and "disagree" selections had low percentages with an average of 10.7%. As well as the percentages for the "neutral" choice that ranged from 7.8% to 11.2% for the third and first statements of the whole respondents to the survey. In addition, the results from Table 6.22 below, relating to the "improvement of environmental performance", which is explained based on the average level of respondents' agreement as follows:

Statement 1: *"Contribute to establishing good relations within the community, where the company carries out its activities".* The mean value of agreement with this statement is the lowest at 3.8%, with a relatively high standard deviation of 1.0%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is slightly higher than 76% of the whole respondents to the survey. According to the Likert scale interpretation, the

mean value ranges between 3.4 and less than 4.2, indicate that the level of agreement for this statement is high.

Statement 2: *"Minimising the negative effects of the company's activities on the surrounding environment to the lowest level".* The mean value of agreement with this statement is the highest at 4.1%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is the highest at almost 83% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, hence the level of agreement for this statement is high.

Table 6.22 Descriptive statistics for decreasing the Company's Impact on the Environment

Statements	Code	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
Contribute to establishing good relations within the community, where the company carries out its activities.	F5.1	24.5	51.6	11.2	9.3	3.3	3.8	1.0
Minimising the negative effects of the company's activities on the surrounding environment to the lowest level.	F5.2	34.7	44.8	10.1	7.6	2.7	4.1	0.9
Enhance the contribution of the company in social and environmental activities as part of its social and environmental responsibility.	F5.3	29.6	53.3	7.8	5.9	3.3	4	0.9

Statement 3: *"Enhance the contribution of the company in social and environmental activities as part of its social and environmental responsibility".* The mean value of agreement with this statement is 4.0%, with a standard deviation of 0.9%. The percentage of respondents, who rated this statement as "strongly agree" and "agree" is 79.5% of the whole respondents to the survey. According to the Likert scale interpretation, the mean value ranges between 3.4 and less than 4.2, indicating that the level of agreement for this statement is high. The following significant part of this chapter presents and discusses the results of inferential statistics related to the data analysis of this study.

6.3. Inferential Statistics

An inferential analysis aims to identify patterns in the data; for example, whether there is a link between two variables, or whether certain groups are more likely to show certain attributes. This analysis aims to draw lessons from a valid sample of this study that can be generalised for the wider population. The inferential statistics in this research aim to identify a relationship between the barriers that hinder TQM and the key factors of its implementation, whilst identifying a relationship between the key factors of TQM and the benefits of its implementation. A Spearman's correlation test has been carried out, using the SPSS 23 programme to analyse and evaluate these relationships.

6.3.1. The Relationship between TQM Barriers and TQM Key Factors

This section will concentrate on a correlation analysis of TQM key factors, which are: top management commitment, continuous improvement, process management, customer focus, training and education, quality culture, policy and strategy, employee empowerment and communication. Each one of these nine key factors has been correlated with seven barriers that hinder TQM's successful implementation. These are: poor understanding and insufficient knowledge of TQM, resistance to change, lack of delegation of authority and responsibility, lack of teamwork, lack of TQM experts, bureaucratic management, and poor ineffective training and development. The correlation analysis has been conducted through two stages. The first stage clarifies the degree of the strength correlation between the barriers of TQM and the key factors of TQM implementation. The second stage summaries the relationship by listing the related sub-ordinate TQM barriers regarding their degree of the strength correlation with certain key factor of TQM.

6.3.1.1. Top Management Commitment

Table 6.23 below indicates that each sub-factor of top management commitment has a different level of negative correlation with some TQM barriers. These range from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation where the ρ-value was equal to 0.045. Based on the correlation analysis, sub-factor 1 shows a medium strength of correlation with resistance to change in addition to low strength of correlation with bureaucratic management. While, sub-factor 2 indicates a low strength of correlation with poor understanding and insufficient knowledge of TQM and a lack of teamwork. At the same time, sub-factor 3 demonstrates a medium strength of correlation with, lack of delegation of authority and responsibility, bureaucratic management and poor

ineffective training and development in addition to a low strength of correlation with resistance to change.

Table 6.23 Spearman's Correlation for Top Management Commitment with Barriers of TQM

Barriers of TQM			Top management commitment		
			K1.1	K1.2	K1.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	0.017	0.061	0.017
		Sig. (2-tailed)	0.859	0.515	0.856
		N	118	118	118
	B1.2	Correlation Coefficient	-0.125	**-.209***	-0.110
		Sig. (2-tailed)	0.178	0.023	0.238
		N	118	118	118
	B1.3	Correlation Coefficient	0.008	0.034	0.113
		Sig. (2-tailed)	0.928	0.714	0.225
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	-0.071	-0.096	0.092
		Sig. (2-tailed)	0.445	0.303	0.321
		N	118	118	118
	B2.2	Correlation Coefficient	**-.394****	0.082	**-.225***
		Sig. (2-tailed)	0.001	0.383	0.016
		N	118	118	118
	B2.3	Correlation Coefficient	0.147	0.084	0.167
		Sig. (2-tailed)	0.112	0.367	0.071
		N	118	118	118
Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	-0.086	-0.113	**-.367****
		Sig. (2-tailed)	0.356	0.224	0.003
		N	118	118	118
	B3.2	Correlation Coefficient	0.022	0.027	0.135
		Sig. (2-tailed)	0.813	0.771	0.144
		N	118	118	118
	B3.3	Correlation Coefficient	0.124	0.156	0.126
		Sig. (2-tailed)	0.181	0.092	0.173
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	-0.118	**-.185***	-0.146
		Sig. (2-tailed)	0.203	0.045	0.114
		N	118	118	118
	B4.2	Correlation Coefficient	-0.032	-0.059	0.038
		Sig. (2-tailed)	0.731	0.529	0.679
		N	118	118	118
	B4.3	Correlation Coefficient	-0.164	-0.079	-0.084
		Sig. (2-tailed)	0.076	0.392	0.363
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	-0.060	-0.104	-0.062
		Sig. (2-tailed)	0.518	0.263	0.502
		N	118	118	118
	B5.2	Correlation Coefficient	-0.095	-0.120	-0.040
		Sig. (2-tailed)	0.304	0.196	0.667
		N	118	118	118
	B5.3	Correlation Coefficient	0.028	-0.142	0.030
		Sig. (2-tailed)	0.761	0.125	0.748
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	0.092	0.045	-0.020
		Sig. (2-tailed)	0.324	0.625	0.833
		N	118	118	118
	B6.2	Correlation Coefficient	**-.232***	0.032	0.056
		Sig. (2-tailed)	0.012	0.732	0.549
		N	118	118	118
	B6.3	Correlation Coefficient	0.079	-0.018	**-.362****
		Sig. (2-tailed)	0.426	0.865	0.004
		N	118	118	118
Poor ineffective training	B7.1	Correlation Coefficient	0.020	0.046	-0.056

and development.		Sig. (2-tailed)	0.832	0.617	0.545
		N	118	118	118
	B7.2	Correlation Coefficient	0.079	0.124	**-.396****
		Sig. (2-tailed)	0.393	0.182	0.001
		N	118	118	118
	B7.3	Correlation Coefficient	-0.147	-0.052	0.152
		Sig. (2-tailed)	0.113	0.579	0.101
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on an analysis of the data contained in Table 6.23 above, the correlation results illustrate one of the key factors of TQM, which is top management commitment, with its related sub-ordinates barriers. These correlated sub-ordinate barriers have been listed regarding the degree of the strength of correlation from high to low. Table 6.24 below, will explain this further:

- Demonstrating its commitment to quality top management continually would contribute to overcoming or reducing the negative impacts of the following TQM barriers:
    1. It is difficult to change the existing attitude of middle and junior management.
    2. The management style does not encourage and motivate the staff to be innovative and efficient.

- Allocating adequate time and resources for quality management, means that top management will contribute to overcoming or reducing the negative impacts of the following barriers:
    1. There is unclear awareness of TQM in the company.
    2. Weaknesses of cross-functional corporation and coordination between departments.

- Using performance indicators to ensure adequate performance, top management will contribute to overcoming or reducing the negative impacts of the following barriers:
    1. It is difficult to change the existing attitude of middle and junior management.
    2. Lack of delegated authority from the top management to other managerial levels.
    3. The company focuses on the results more than the process.
    4. There are difficulties in achieving training targets at the company.

Table 6.24 Summarising Correlation Results for Top Management Commitment with sub-ordinate Barriers

Top Management Commitment		Related TQM sub-ordinate barriers from high to low strength correlation
K1.1	Top management continually demonstrates its commitment to quality.	It is difficult to change the existing attitude of middle and junior management.
		The management style does not encourage and motivate the staff to be innovative and efficient.
K1.2	Top management is inclined to allocate adequate time and resources for quality management.	There is unclear awareness of TQM in the company.
		Weaknesses of cross-functional corporation and coordination between departments.
K1.3	Top management uses performance indicators to ensure adequate performance.	There are difficulties in achieving training targets at the company
		Lack of delegated authority from the top management to other managerial levels.
		The company focuses on the results more than the process.
		It is difficult to change the existing attitude of middle and junior management.

6.3.1.2. Continuous Improvement

Table 6.25 displays that each sub-factor of continuous improvement shows a different level of negative correlation with some TQM barriers; these range from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation where the ρ-value was equal to 0.044. Based on the correlation analysis, sub-factor 1 shows a medium strength of correlation with poor ineffective training and development and low strength correlation with poor understanding and insufficient knowledge of TQM, a Lack of delegation of authority and responsibility and bureaucratic management. While, sub-factor 2 indicates a medium strength correlation with a lack of delegation of authority and responsibility and a lack of TQM experts in addition to low strength correlation with poor ineffective training and development. At the same time, sub-factor 3 demonstrates only a low strength correlation with a lack of TQM expert.

Table 6.25 Spearman's Correlation for Continuous Improvement with Barriers of TQM

Barriers of TQM			Continuous improvement		
			K2.1	K2.2	K2.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	**-.207***	-0.153	-0.016
		Sig. (2-tailed)	0.025	0.097	0.861
		N	118	118	118
	B1.2	Correlation Coefficient	0.124	0.035	-0.067
		Sig. (2-tailed)	0.182	0.706	0.471
		N	118	118	118
	B1.3	Correlation Coefficient	-0.119	-0.065	-0.168
		Sig. (2-tailed)	0.200	0.487	0.069
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	-0.065	-0.091	0.040
		Sig. (2-tailed)	0.493	0.341	0.670
		N	118	118	118
	B2.2	Correlation Coefficient	-0.023	0.092	0.062
		Sig. (2-tailed)	0.819	0.313	0.503
		N	118	118	118
	B2.3	Correlation Coefficient	0.019	-0.014	0.107
		Sig. (2-tailed)	0.849	0.896	0.249
		N	118	118	118
Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	0.104	**-.394****	-0.026
		Sig. (2-tailed)	0.269	0.001	0.780
		N	118	118	118
	B3.2	Correlation Coefficient	-0.036	-0.017	0.081
		Sig. (2-tailed)	0.698	0.856	0.384
		N	118	118	118
	B3.3	Correlation Coefficient	**-.195***	-0.020	-0.017
		Sig. (2-tailed)	0.035	0.828	0.857
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	-0.115	0.074	-0.145
		Sig. (2-tailed)	0.215	0.421	0.118
		N	118	118	118
	B4.2	Correlation Coefficient	0.054	0.060	-0.075
		Sig. (2-tailed)	0.562	0.516	0.419
		N	118	118	118
	B4.3	Correlation Coefficient	0.043	0.121	-0.116
		Sig. (2-tailed)	0.653	0.196	0.212
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	0.062	0.167	0.150
		Sig. (2-tailed)	0.502	0.070	0.106
		N	118	118	118
	B5.2	Correlation Coefficient	-0.005	**-.359****	0.158
		Sig. (2-tailed)	0.961	0.005	0.087
		N	118	118	118
	B5.3	Correlation Coefficient	0.051	0.102	**-.234***
		Sig. (2-tailed)	0.584	0.273	0.011
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	-0.173	-0.044	0.051
		Sig. (2-tailed)	0.062	0.639	0.582
		N	118	118	118
	B6.2	Correlation Coefficient	**-.228***	0.180	0.065
		Sig. (2-tailed)	0.013	0.051	0.482
		N	118	118	118
	B6.3	Correlation Coefficient	-0.004	-0.040	0.037
		Sig. (2-tailed)	0.967	0.664	0.695
		N	118	118	118
Poor ineffective training and development.	B7.1	Correlation Coefficient	-0.017	**-.186***	0.054
		Sig. (2-tailed)	0.859	0.044	0.561
		N	118	118	118
	B7.2	Correlation Coefficient	-0.065	-0.122	-0.031
		Sig. (2-tailed)	0.487	0.189	0.739
		N	118	118	118

	B7.3	Correlation Coefficient	**-.389****	0.023	0.048
		Sig. (2-tailed)	0.001	0.802	0.604
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the analysis above, Table 6.25 illustrates the correlation results by showing the TQM key factor; continuous improvement, with its related sub-ordinated barriers. The correlated sub-ordinate barriers have been listed regarding the degree of the strength of correlation from high to low as shown in Table 6.26:

- Making quality improvement is the responsibility of every employee in the company. This would contribute to combating or reducing the negative impact of the following barriers:
  1. Poor of understanding of the purposes and the benefits of TQM.
  2. Managers at middle and junior levels follow instructions more than creating proposals in their jobs.
  3. The management style does not encourage and motive the staff to be innovative and efficient.
  4. Lack of using modern training methods at the company.

- An emphasis on improvement rather than maintenance would contribute to a reduction in the negative impacts the following barriers:
  1. Lack of delegated authority from the top management to other managerial levels.
  2. Shortage of knowledge and skills to implement TQM.
  3. There is a shortage of qualified trainers at the company.

- An emphasis on the best implementation of continuous improvement processes for all tasks at all levels, would contribute to overcoming or reducing the negative impact of TQM barrier related to placing wrong people in the wrong position.

Table 6.26 Summarizing Correlation Results for Continuous Improvement with sub-ordinate barriers of TQM

Continuous improvement		Related TQM sub-ordinate barriers from high to low strength correlation
K2.1	All company employees believe that quality improvement is their individual responsibility.	Lack of using modern training methods at the company.
		The management style does not encourage and motive the staff to be innovative and efficient.
		Poor of understanding of the purposes and the benefits of TQM.
		Managers at middle and junior levels follow instructions more than creating proposals in their jobs.
K2.2	The company emphasises improvement rather than maintenance.	Lack of delegated authority from the top management to other managerial levels.
		Shortage of knowledge and skills to implement TQM.
		There is a shortage of qualified trainers at the company.
K2.3	The company emphasises the best implementation of continuous improvement processes for all tasks at all levels.	There are wrong people in the wrong position.

6.3.1.3. Process Management

Table 6.27 shows that each sub-factor of process management displays a different level of negative correlation with some TQM barriers. These range from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.032. Based on the correlation analysis, sub-factor 1 shows a medium strength of correlation with resistance to change and bureaucratic management, in addition to a low strength correlation with a lack of delegation of authority and responsibility and lack of TQM experts. In contrast, sub-factor 2 indicates a low strength correlation with lack of delegation of authority and responsibility and bureaucratic management. At the same time, sub-factor 3 shows a medium strength correlation with resistance to change and a low strength correlation with a lack of teamwork and bureaucratic management.

Table 6.27 Spearman's Correlation for Process Management with Barriers of TQM.

Barriers of TQM			Process management		
			K3.1	K3.2	K3.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	-0.064	-0.057	-0.156
		Sig. (2-tailed)	0.488	0.541	0.093
		N	118	118	118
	B1.2	Correlation Coefficient	-0.129	-0.077	-0.105
		Sig. (2-tailed)	0.162	0.408	0.259
		N	118	118	118
	B1.3	Correlation Coefficient	-0.033	-0.039	-0.175
		Sig. (2-tailed)	0.721	0.674	0.058
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	0.129	0.107	0.086
		Sig. (2-tailed)	0.164	0.247	0.355
		N	118	118	118
	B2.2	Correlation Coefficient	**-.337****	0.074	**-.352****
		Sig. (2-tailed)	0.010	0.426	0.006
		N	118	118	118
	B2.3	Correlation Coefficient	0.127	-0.015	0.058
		Sig. (2-tailed)	0.171	0.871	0.530
		N	118	118	118
Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	**-.198***	-0.046	-0.138
		Sig. (2-tailed)	0.032	0.621	0.135
		N	118	118	118
	B3.2	Correlation Coefficient	0.007	0.020	-0.047
		Sig. (2-tailed)	0.942	0.830	0.611
		N	118	118	118
	B3.3	Correlation Coefficient	-0.036	**-.192***	0.005
		Sig. (2-tailed)	0.701	0.037	0.957
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	-0.065	-0.089	**-.226***
		Sig. (2-tailed)	0.488	0.339	0.014
		N	118	118	118
	B4.2	Correlation Coefficient	-0.070	0.105	0.058
		Sig. (2-tailed)	0.453	0.260	0.534
		N	118	118	118
	B4.3	Correlation Coefficient	-0.150	-0.002	0.001
		Sig. (2-tailed)	0.105	0.981	0.987
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	-0.014	-0.053	-0.080
		Sig. (2-tailed)	0.878	0.566	0.389
		N	118	118	118
	B5.2	Correlation Coefficient	**-.201***	0.132	0.168
		Sig. (2-tailed)	0.029	0.155	0.068
		N	118	118	118
	B5.3	Correlation Coefficient	0.002	-0.058	-0.026
		Sig. (2-tailed)	0.982	0.535	0.783
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	0.017	0.041	-0.124
		Sig. (2-tailed)	0.855	0.660	0.181
		N	118	118	118
	B6.2	Correlation Coefficient	**-.362****	**-.220***	0.070
		Sig. (2-tailed)	0.004	0.017	0.452
		N	118	118	118
	B6.3	Correlation Coefficient	0.036	0.014	**-.213***
		Sig. (2-tailed)	0.702	0.881	0.021
		N	118	118	118
Poor ineffective training and development.	B7.1	Correlation Coefficient	0.034	0.028	0.024
		Sig. (2-tailed)	0.713	0.764	0.798
		N	118	118	118

	B7.2	Correlation Coefficient	0.164	0.057	0.126
		Sig. (2-tailed)	0.076	0.541	0.176
		N	118	118	118
	B7.3	Correlation Coefficient	-0.042	0.133	-0.020
		Sig. (2-tailed)	0.648	0.152	0.831
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based from the above analysis, table 6.27 indicates the correlation results by showing the TQM key factor, process management, with its related sub-ordinated barriers of TQM. The correlated sub-ordinated barriers have been listed regarding the degree of the strength of correlation from high to low. Table 6.28, will offer further explanation as follows:

- Providing appropriate management measures to control and improve the production or delivery process would contribute to overcoming or reducing the negative impacts of the following barriers:
  1. It is difficult to change the existing attitude of middle and junior management.
  2. Lack of delegated authority from the top management to other managerial levels.
  3. Shortage of knowledge and skills to implement TQM.
  4. The management style does not encourage and motive the staff to be innovative and efficient.

- Providing relevant measurements to cover to key process in the company will contribute to overcome or reduce the negative impacts of the following barriers:
  1. Managers at middle and junior levels follow instructions more than creating proposals in their jobs.
  2. The management style does not encourage and motive the staff to be innovative and efficient.

- Using and following clear working procedures and instructions will contribute to overcome or reduce the negative impacts of the following barriers:
  1. It is difficult to change the existing attitude of middle and junior management.
  2. Weaknesses of cross-functional cooperation and coordination between departments.
  3. The company focuses on the results more than the processes.

Table 6.28 Summarizing Correlation Results for Process Management with sub-ordinate barriers of TQM

Process management		Related TQM sub-ordinate barriers from high to low strength correlation
K3.1	The company has appropriate management measures to control and improve the production or delivery process.	The management style does not encourage and motive the staff to be innovative and efficient.
		It is difficult to change the existing attitude of middle and junior management.
		Shortage of knowledge and skills to implement TQM.
		Lack of delegated authority from the top management to other managerial levels.
K3.2	The management provides relevant measurements to cover the key process in the company.	The management style does not encourage and motive the staff to be innovative and efficient.
		Managers at middle and junior levels follow instructions more than creating proposals in their jobs.
K3.3	The company uses and follows clear working procedures and instructions.	It is difficult to change the existing attitude of middle and junior management.
		Weaknesses of cross-functional cooperation and coordination between departments.
		The company focuses on the results more than the processes.

6.3.1.4. Customer Focus

Table 6.29 indicates that each sub-factor of customer focus reveals a different level of negative correlation with some TQM barriers. Ranging from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.046. Based on the correlation analysis, sub-factor 1 shows a medium strength correlation to a bureaucratic management and a low strength correlation to a lack of teamwork. While, sub-factor 2 indicates a low strength correlation with a lack of TQM experts and poor ineffective training and development. Simultaneously, sub-factor 3 shows a medium strength correlation with a poor ineffective training in addition to a low strength correlation with lack of TQM experts.

Table 6.29 Spearman's Correlation for Customer Focus with Barriers of TQM

Barriers of TQM			Customer focus		
			K4.1	K4.2	K4.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	-0.116	0.058	-0.033
		Sig. (2-tailed)	0.209	0.533	0.723
		N	118	118	118
	B1.2	Correlation Coefficient	-0.009	-0.039	0.064
		Sig. (2-tailed)	0.927	0.678	0.489
		N	118	118	118
	B1.3	Correlation Coefficient	0.136	-0.061	0.000
		Sig. (2-tailed)	0.142	0.513	0.998
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	0.144	0.114	-0.033
		Sig. (2-tailed)	0.119	0.217	0.723
		N	118	118	118
	B2.2	Correlation Coefficient	-0.004	-0.040	0.037
		Sig. (2-tailed)	0.969	0.666	0.697
		N	118	118	118
	B2.3	Correlation Coefficient	0.143	0.082	0.169
		Sig. (2-tailed)	0.115	0.368	0.069
		N	118	118	118
Lack of delegation of authority and responsibility	B3.1	Correlation Coefficient	-0.145	-0.134	0.010
		Sig. (2-tailed)	0.116	0.148	0.915
		N	118	118	118
	B3.2	Correlation Coefficient	-0.111	-0.005	-0.141
		Sig. (2-tailed)	0.231	0.961	0.128
		N	118	118	118
	B3.3	Correlation Coefficient	-0.012	0.043	-0.032
		Sig. (2-tailed)	0.898	0.642	0.730
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	**-.209***	-0.125	-0.110
		Sig. (2-tailed)	0.023	0.178	0.238
		N	118	118	118
	B4.2	Correlation Coefficient	-0.004	0.069	0.032
		Sig. (2-tailed)	0.968	0.455	0.728
		N	118	118	118
	B4.3	Correlation Coefficient	-0.073	-0.078	-0.143
		Sig. (2-tailed)	0.434	0.400	0.123
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	0.081	0.042	0.120
		Sig. (2-tailed)	0.385	0.654	0.195
		N	118	118	118
	B5.2	Correlation Coefficient	0.092	**-.184***	0.139
		Sig. (2-tailed)	0.327	0.046	0.127
		N	118	118	118
	B5.3	Correlation Coefficient	0.118	0.071	**-.192***
		Sig. (2-tailed)	0.204	0.447	0.037
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	-0.025	0.022	-0.097
		Sig. (2-tailed)	0.792	0.810	0.296
		N	118	118	118
	B6.2	Correlation Coefficient	**-.343****	0.123	0.023
		Sig. (2-tailed)	0.008	0.183	0.803
		N	118	118	118
	B6.3	Correlation Coefficient	0.016	0.057	0.002
		Sig. (2-tailed)	0.865	0.543	0.987
		N	118	118	118
Poor ineffective training and development.	B7.1	Correlation Coefficient	0.044	0.088	0.014
		Sig. (2-tailed)	0.633	0.346	0.880
		N	118	118	118
	B7.2	Correlation Coefficient	0.065	0.080	-0.024
		Sig. (2-tailed)	0.482	0.388	0.799
		N	118	118	118

	B7.3	Correlation Coefficient	0.001	**-.193***	**-.343****
		Sig. (2-tailed)	0.992	0.036	0.008
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the above analysis, Table 6.29 specifies the correlation results by showing the TQM key factor; customer focus with its related sub-ordinated barriers. The correlated sub-ordinated barriers have been listed regarding the degree of the strength correlation from high to low. Table 6.30 will offer an explanation as follows:

- Determination of current and future customer requirements and expectations would contribute to combating or reducing the negative impacts of the following barriers:
  1. Weaknesses of cross-functional cooperation and coordination between departments.
  2. The management style does not encourage and motive the staff to be innovative and efficient.

- Understanding the needs of customers and markets well, would contribute to the end or a reduction of the negative impacts of the following barriers:
  1. Shortage of knowledge and skills to implement TQM.
  2. Lack of using modern training methods at the company.

- Full awareness of market trends would contribute to overcoming or reducing the negative impacts of the following barriers:
  1. There are wrong people in the wrong position.
  2. Lack of using modern training methods at the company

Table 6.30 : Summarizing Correlation Results for Customer Focus with sub-ordinate barriers of TQM.

Customer Focus		Related TQM sub-ordinate barriers from high to low strength correlation
K4.1	The company determines current and future customer requirements and expectations.	The management style does not encourage and motive the staff to be innovative and efficient
		Weaknesses of cross-functional cooperation and coordination between departments.
K4.2	The company understands the needs of its customers and markets well.	Lack of using modern training methods at the company
		Shortage of knowledge and skills to implement TQM
K4.3	The company is fully aware of market trends.	Lack of using modern training methods at the company
		There are wrong people in the wrong position

6.3.1.5. Training and Development

Table 6.31 shows that each sub-factor of training and development demonstrates a different level of negative correlation with some TQM barriers. Ranging from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.028. Based on the correlation analysis, sub-factor 1 shows a medium strength correlation with poor understanding and insufficient knowledge of TQM in addition to a low strength correlation with a lack of teamwork and a lack of TQM experts. While, sub-factor 2 indicates a medium strength correlation with lack of TQM experts and poor ineffective training and development. At the same time, sub-factor 3 shows medium strength correlation with one TQM barrier, which is poor ineffective training and development.

Table 6.31 Spearman's Correlation for Training and Development with Barriers of TQM

Barriers of TQM			Training and Development		
			K5.1	K5.2	K5.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	0.073	0.137	-0.012
		Sig. (2-tailed)	0.435	0.138	0.899
		N	118	118	118
	B1.2	Correlation Coefficient	**-.385****	0.147	0.082
		Sig. (2-tailed)	0.002	0.113	0.379
		N	118	118	118
	B1.3	Correlation Coefficient	0.022	0.102	-0.004
		Sig. (2-tailed)	0.814	0.271	0.966
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	-0.069	-0.150	-0.002
		Sig. (2-tailed)	0.456	0.103	0.980
		N	118	118	118
	B2.2	Correlation Coefficient	-0.078	-0.014	-0.053
		Sig. (2-tailed)	0.403	0.878	0.566
		N	118	118	118
	B2.3	Correlation Coefficient	0.003	-0.058	-0.026
		Sig. (2-tailed)	0.971	0.537	0.785
		N	118	118	118
Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	0.172	0.067	0.056
		Sig. (2-tailed)	0.063	0.472	0.549
		N	118	118	118
	B3.2	Correlation Coefficient	0.067	0.078	0.100
		Sig. (2-tailed)	0.469	0.398	0.281
		N	118	118	118
	B3.3	Correlation Coefficient	0.122	0.021	0.003
		Sig. (2-tailed)	0.189	0.818	0.971
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	**-.202***	0.167	0.150
		Sig. (2-tailed)	0.028	0.070	0.106
		N	118	118	118
	B4.2	Correlation Coefficient	0.055	0.011	0.017
		Sig. (2-tailed)	0.553	0.908	0.856
		N	118	118	118
	B4.3	Correlation Coefficient	0.026	0.017	0.041
		Sig. (2-tailed)	0.783	0.855	0.660
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	**-.204***	**-.338****	-0.165
		Sig. (2-tailed)	0.027	0.010	0.074
		N	118	118	118
	B5.2	Correlation Coefficient	-0.076	-0.065	-0.011

		Sig. (2-tailed)	0.415	0.484	0.909
		N	118	118	118
	B5.3	Correlation Coefficient	-0.082	0.170	0.066
		Sig. (2-tailed)	0.380	0.066	0.479
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	-0.105	0.009	-0.076
		Sig. (2-tailed)	0.257	0.923	0.415
		N	118	118	118
	B6.2	Correlation Coefficient	-0.132	-0.150	-0.128
		Sig. (2-tailed)	0.153	0.105	0.167
		N	118	118	118
	B6.3	Correlation Coefficient	-0.084	-0.113	-0.122
		Sig. (2-tailed)	0.367	0.222	0.188
		N	118	118	118
Poor ineffective training and development.	B7.1	Correlation Coefficient	-0.164	-0.034	-0.130
		Sig. (2-tailed)	0.075	0.714	0.161
		N	118	118	118
	B7.2	Correlation Coefficient	-0.041	-0.083	-0.109
		Sig. (2-tailed)	0.661	0.374	0.239
		N	118	118	118
	B7.3	Correlation Coefficient	-0.049	**-.370****	**-.380****
		Sig. (2-tailed)	0.600	0.002	0.002
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the above analysis, Table 6.31 specifies the correlation results by showing the TQM key factor; training and development with its related TQM sub-ordinated barriers. The correlated sub-ordinated barriers have been listed regarding the degree of the strength of the correlation from high to low. Table 6.32, will explain in further detail as follows:

- Providing quality-related training to managers, supervisors and employees, would contribute to the reduction of the negative impacts of the following TQM barriers:
  1. There is unclear awareness of TQM in the company.
  2. Weaknesses of cross-functional cooperation and coordination between departments.
  3. Lack of experts and specialists in TQM.
- Providing the required resources to cover the employees' training needs and development would contribute to overcoming or reducing the negative impacts of the following TQM barriers:

  1. Lack of experts and specialists in TQM.
  2. Lack of using modern training methods at the company.
- Evaluating training outputs on a regular basis would contribute to combating or reducing the negative impacts of the lack of using modern training methods at the company.

Table 6.32 Summarizing Correlation Results for Training and Development with sub-ordinate barriers of TQM

Training and Development		Related TQM sub-ordinate barriers from high to low strength correlation
K5.1	Quality-related training given to managers, supervisors and employees.	There is unclear awareness of TQM in the company
		Lack of experts and specialists in TQM
		Weaknesses of cross-functional cooperation and coordination between departments
K5.2	Resources are available to cover employees training needs and development.	Lack of using modern training methods at the company
		Lack of experts and specialists in TQM
K5.3	The company evaluates training outputs on a regular basis.	Lack of using modern training methods at the company

6.3.1.6. Quality Culture

Table 6.33 indicates that each sub-factor of quality culture states a different level of negative correlation with some TQM barriers. These range from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.035. Based on the correlation analysis, sub-factor 1 indicates a medium strength correlation with lack of teamwork and a low strength correlation with bureaucratic management. Sub-factor 2 shows a low strength correlation with resistance to change and poor ineffective training and development. Whilst, sub-factor 3 shows medium strength correlation with lack of teamwork in addition to a low strength correlation with lack of TQM experts and poor ineffective training and development in addition to lack of teamwork.

Table 6.33 Spearman's Correlation Results for Quality Culture with Barriers of TQM

Barriers of TQM			Quality Culture		
			K6.1	K6.2	K6.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	-0.088	-0.150	-0.153
		Sig. (2-tailed)	0.343	0.104	0.097
		N	118	118	118
	B1.2	Correlation Coefficient	0.037	-0.021	-0.066
		Sig. (2-tailed)	0.688	0.819	0.478
		N	118	118	118
	B1.3	Correlation Coefficient	0.004	-0.101	-0.069
		Sig. (2-tailed)	0.968	0.276	0.455
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	0.065	0.170	0.153
		Sig. (2-tailed)	0.501	0.068	0.102
		N	118	118	118
	B2.2	Correlation Coefficient	-0.017	**-.228***	0.054
		Sig. (2-tailed)	0.859	0.013	0.561
		N	118	118	118
	B2.3	Correlation Coefficient	-0.032	-0.038	-0.174
		Sig. (2-tailed)	0.721	0.674	0.058
		N	118	118	118

Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	0.019	0.043	-0.126
		Sig. (2-tailed)	0.854	0.660	0.181
		N	118	118	118
	B3.2	Correlation Coefficient	-0.151	-0.166	-0.023
		Sig. (2-tailed)	0.102	0.073	0.804
		N	118	118	118
	B3.3	Correlation Coefficient	-0.116	0.059	-0.048
		Sig. (2-tailed)	0.209	0.525	0.604
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	-0.174	-0.109	-0.124
		Sig. (2-tailed)	0.060	0.229	0.180
		N	118	118	118
	B4.2	Correlation Coefficient	-0.058	0.104	-0.015
		Sig. (2-tailed)	0.536	0.260	0.876
		N	118	118	118
	B4.3	Correlation Coefficient	**-.392****	-0.112	**-.396****
		Sig. (2-tailed)	0.001	0.227	0.001
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	0.152	0.148	0.121
		Sig. (2-tailed)	0.108	0.118	0.193
		N	118	118	118
	B5.2	Correlation Coefficient	0.154	0.178	0.167
		Sig. (2-tailed)	0.092	0.053	0.070
		N	118	118	118
	B5.3	Correlation Coefficient	0.179	0.170	**-.221***
		Sig. (2-tailed)	0.055	0.066	0.016
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	-0.134	0.026	0.095
		Sig. (2-tailed)	0.148	0.778	0.307
		N	118	118	118
	B6.2	Correlation Coefficient	**-.195***	0.133	0.043
		Sig. (2-tailed)	0.035	0.152	0.647
		N	118	118	118
	B6.3	Correlation Coefficient	-0.013	0.007	0.059
		Sig. (2-tailed)	0.893	0.936	0.526
		N	118	118	118
Poor ineffective training and development.	B7.1	Correlation Coefficient	0.128	-0.045	-0.076
		Sig. (2-tailed)	0.169	0.631	0.413
		N	118	118	118
	B7.2	Correlation Coefficient	0.152	0.041	0.006
		Sig. (2-tailed)	0.100	0.664	0.950
		N	118	118	118
	B7.3	Correlation Coefficient	0.116	**-.207***	**-.211***
		Sig. (2-tailed)	0.213	0.024	0.022
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the analysis above, Table 6.33 displays the correlation results by showing the TQM key factor; quality culture with its related sub-ordinated barriers of TQM. The correlated sub-ordinated barriers have been listed regarding the degree of the strength of correlation from high to low. Table 6.34, will offer further explanation as follows:

- Changing traditional culture to TQM culture could contribute to a reduction in the negative impacts of the following barriers:

    1. Lack of effective teams or team building skills.

2. The management style does not encourage and motive the staff to be innovative and efficient.

- The adoption of TQM culture to fit with changes in the business environment would contribute to overcoming or reducing the following barriers:

1. It is difficult to change the existing attitude of middle and junior management.
2. Lack of using modern training methods at the company.

- The ongoing creation of quality culture among employees would contribute to a reduction of the following barriers:

1. Lack of effective teams or team building skills.
2. There are wrong people in the wrong position.
3. Lack of using modern training methods at the company.

Table 6.34 Summarizing Correlation Results for Quality Culture with sub-ordinate barriers of TQM.

Quality culture		Related TQM sub-ordinate barriers from high to low strength correlation
K6.1	Changing traditional culture is one of the most important steps towards successful implementation of TQM in the company.	Lack of effective teams or team building skills
		The management style does not encourage and motive the staff to be innovative and efficient
K6.2	Adopting TQM culture will assist the company to fit with the changes in the business environment.	It is difficult to change the existing attitude of middle and junior management
		Lack of using modern training methods at the company
K6.3	There is an ongoing creation of quality culture among employees.	Lack of effective teams or team building skills
		There are wrong people in the wrong position
		Lack of using modern training methods at the company

6.3.1.7. Policy and Strategy

Table 6.35 shows that each sub-factor of policy and strategy states a different level of negative correlation with some TQM barriers; ranging from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.046. Based on the correlation analysis, sub-factor 1 indicates a medium strength correlation with resistance to change and a low strength correlation with poor understanding and insufficient knowledge of TQM. While, sub-factor 2 shows a low strength correlation with a lack of delegation of authority and responsibility and bureaucratic management. At the

same time, sub-factor 3 shows a low strength correlation with poor understanding, insufficient knowledge of TQM and bureaucratic management.

Table 6.35 Spearman's Correlation for Policy and Strategy with Barriers of TQM

Barriers of TQM			Policy and strategy		
			K7.1	K7.2	K7.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	0.068	-0.008	0.068
		Sig. (2-tailed)	0.463	0.929	0.463
		N	118	118	118
	B1.2	Correlation Coefficient	**-.210***	-0.174	**-.184***
		Sig. (2-tailed)	0.022	0.059	0.046
		N	118	118	118
	B1.3	Correlation Coefficient	0.146	-0.076	-0.009
		Sig. (2-tailed)	0.114	0.414	0.923
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	**-.363****	-0.042	-0.022
		Sig. (2-tailed)	0.004	0.651	0.814
		N	118	118	118
	B2.2	Correlation Coefficient	0.118	0.068	0.057
		Sig. (2-tailed)	0.209	0.471	0.549
		N	118	118	118
	B2.3	Correlation Coefficient	0.009	0.021	-0.047
		Sig. (2-tailed)	0.941	0.830	0.611
		N	118	118	118
Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	0.081	0.076	0.153
		Sig. (2-tailed)	0.385	0.414	0.099
		N	118	118	118
	B3.2	Correlation Coefficient	0.020	-0.048	-0.018
		Sig. (2-tailed)	0.826	0.608	0.843
		N	118	118	118
	B3.3	Correlation Coefficient	0.075	**-.210***	0.067
		Sig. (2-tailed)	0.421	0.022	0.472
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	0.019	-0.048	0.063
		Sig. (2-tailed)	0.837	0.608	0.495
		N	118	118	118
	B4.2	Correlation Coefficient	0.084	-0.003	0.039
		Sig. (2-tailed)	0.364	0.975	0.671
		N	118	118	118
	B4.3	Correlation Coefficient	0.146	-0.060	-0.075
		Sig. (2-tailed)	0.115	0.515	0.419
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	-0.119	-0.066	-0.012
		Sig. (2-tailed)	0.202	0.484	0.909
		N	118	118	118
	B5.2	Correlation Coefficient	-0.005	-0.150	0.060
		Sig. (2-tailed)	0.954	0.105	0.517
		N	118	118	118
	B5.3	Correlation Coefficient	-0.087	-0.125	-0.108
		Sig. (2-tailed)	0.348	0.176	0.243
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	0.108	0.180	0.095
		Sig. (2-tailed)	0.244	0.050	0.304
		N	118	118	118
	B6.2	Correlation Coefficient	0.019	**-.228***	-0.101
		Sig. (2-tailed)	0.841	0.013	0.277
		N	118	118	118
	B6.3	Correlation Coefficient	0.058	0.052	**-.224***
		Sig. (2-tailed)	0.532	0.578	0.015
		N	118	118	118

Poor ineffective training and development.	B7.1	Correlation Coefficient	0.098	0.110	-0.068
		Sig. (2-tailed)	0.289	0.235	0.463
		N	118	118	118
	B7.2	Correlation Coefficient	-0.111	0.145	-0.063
		Sig. (2-tailed)	0.231	0.117	0.496
		N	118	118	118
	B7.3	Correlation Coefficient	0.124	0.006	-0.105
		Sig. (2-tailed)	0.182	0.945	0.259
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the analysis above, Table 6.35 displays the correlation results by showing the TQM key factor, policy and strategy, with its related sub-ordinated barriers of TQM. The correlated sub-ordinated barriers have been listed regarding the degree of the strength correlation from high to low. Table 6.36, will be explained as follows:

- Reflecting the concept of quality management in the company's values, vision and mission, will contribute to overcoming or reducing the negative impacts of the following TQM barriers:
    1. There is unclear awareness of TQM in the company.
    2. Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs.
- Having clear knowledge about policy and strategy related to quality management, will contribute to the negative impacts of the following barriers:
    1. Managers at middle and junior levels follow instructions more than creating proposals in their jobs.
    2. The management style does not encourage and motive the staff to be innovative and efficient.
- Managing and reviewing quality management policies and strategies on a regular basis, will contribute to the negative impacts of the following barriers:
    1. There is unclear awareness of TQM in the company.
    2. The company focuses on the results more than the processes.

Table 6.36 Summarizing Correlation Results for Policy and Strategy with sub-ordinate barriers of TQM

Policy and strategy		Related TQM sub-ordinate barriers from high to low strength correlation
K7.1	The concept of quality management is reflected in the company's values, vision and mission.	Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs
		There is unclear awareness of TQM in the company
K7.2	The company's staff, particularly the middle and junior managers, have a clear knowledge about the policies and strategies related to quality management.	The management style does not encourage and motive the staff to be innovative and efficient
		Managers at middle and junior levels follow instructions more than creating proposals in their jobs
K7.3	The policy and strategy related to quality management is managed and reviewed on a regular basis.	The company focuses on the results more than the processes
		There is unclear awareness of TQM in the company

6.3.1.8. Employee Empowerment

Table 6.37 demonstrates that each sub-factor of employee empowerment shows a different level of negative correlation with some TQM barriers; these ranged from a medium strength correlation, where the ρ-value was less than 0.01, to low strength correlation, where the ρ-value was equal to 0.031. Based on the correlation analysis, sub-factor 1 indicates a medium strength correlation with resistance to change and a low strength correlation with bureaucratic management. While, sub-factor 2 shows a medium strength correlation with resistance to change and lack of delegation of authority and responsibility as well as a low strength correlation with a lack of teamwork and poor ineffective training and development. At the same time, sub-factor 3 shows a medium strength correlation with a lack of delegation of authority and responsibility and bureaucratic management.

Table 6.37 Spearman's Correlation for Employee Empowerment with Barriers of TQM

Barriers of TQM			Employee empowerment		
			K8.1	K8.2	K8.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	0.047	-0.140	0.039
		Sig. (2-tailed)	0.614	0.130	0.675
		N	118	118	118
	B1.2	Correlation Coefficient	0.153	-0.030	0.130
		Sig. (2-tailed)	0.099	0.746	0.161
		N	118	118	118
	B1.3	Correlation Coefficient	0.103	-0.005	-0.062
		Sig. (2-tailed)	0.267	0.956	0.507
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	**-.378****	**-.359****	0.158
		Sig. (2-tailed)	0.002	0.005	0.087
		N	118	118	118
	B2.2	Correlation Coefficient	-0.134	0.165	0.030
		Sig. (2-tailed)	0.148	0.074	0.751
		N	118	118	118
	B2.3	Correlation Coefficient	-0.127	0.153	0.062
		Sig. (2-tailed)	0.169	0.098	0.505
		N	118	118	118
Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	0.079	-0.042	0.041
		Sig. (2-tailed)	0.397	0.648	0.658
		N	118	118	118
	B3.2	Correlation Coefficient	-0.042	**-.387****	-0.020
		Sig. (2-tailed)	0.648	0.002	0.831
		N	118	118	118
	B3.3	Correlation Coefficient	0.074	-0.016	**-.363****
		Sig. (2-tailed)	0.428	0.867	0.004
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	0.075	-0.063	-0.088
		Sig. (2-tailed)	0.420	0.496	0.343
		N	118	118	118
	B4.2	Correlation Coefficient	0.006	**-.233***	0.094
		Sig. (2-tailed)	0.947	0.011	0.311
		N	118	118	118
	B4.3	Correlation Coefficient	-0.007	0.018	-0.012
		Sig. (2-tailed)	0.937	0.850	0.898
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	-0.090	0.118	0.136
		Sig. (2-tailed)	0.333	0.204	0.141
		N	118	118	118
	B5.2	Correlation Coefficient	-0.021	0.074	-0.046
		Sig. (2-tailed)	0.822	0.424	0.617
		N	118	118	118
	B5.3	Correlation Coefficient	-0.072	0.082	0.176
		Sig. (2-tailed)	0.439	0.379	0.056
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	-0.068	-0.060	-0.035
		Sig. (2-tailed)	0.464	0.520	0.709
		N	118	118	118
	B6.2	Correlation Coefficient	-0.010	-0.107	**-.353****
		Sig. (2-tailed)	0.911	0.248	0.006
		N	118	118	118
	B6.3	Correlation Coefficient	**-.210***	-0.005	0.112
		Sig. (2-tailed)	0.023	0.960	0.228
		N	118	118	118
Poor ineffective training and development.	B7.1	Correlation Coefficient	-0.033	-0.025	0.108
		Sig. (2-tailed)	0.721	0.789	0.243
		N	118	118	118
	B7.2	Correlation Coefficient	-0.049	0.145	0.125
		Sig. (2-tailed)	0.599	0.118	0.179

		N	118	118	118
	B7.3	Correlation Coefficient	-0.103	**-.199***	0.125
		Sig. (2-tailed)	0.265	0.031	0.179
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on above analysis, Table 6.37 indicates the correlation results by showing the TQM key factor, employee empowerment, with its related sub-ordinated barriers of TQM. The correlated sub-ordinated barriers have been listed regarding the degree of the strength correlation from high to low. Table 6.38, will be clarified as follows:

- Giving employees the required authority in their position, could contribute to overcoming or reducing the negative impacts of the following barriers:
  1. Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs.
  2. The company focuses on the results more than the processes.
- Motivating employees to suggest and create ideas for work improvement, will contribute to a reduction in the negative impacts of the following barriers:
  1. Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs.
  2. Work responsibilities are not delegated at the company.
  3. Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team.
  4. Lack of using modern training methods at the company.
- The involvement of middle and junior managers in the decision-making process, will contribute to overcoming or reducing the negative impacts of the following barriers:

  1. Managers at middle and junior levels follow instructions more than creating proposals in their jobs.
  2. The management style does not encourage and motive the staff to be innovative and efficient.

Table 6.38 Summarizing Correlation Results for Employee Empowerment with sub-ordinate barriers of TQM.

Employee empowerment		Related TQM sub-ordinate barriers from high to low strength correlation
K8.1	Employees have authority in their positions to make necessary actions when required.	Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs
		The company focuses on the results more than the processes
K8.2	Management motivates employees to suggest and create ideas for work improvement.	Work responsibilities are not delegated at the company
		Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs
		Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team
		Lack of using modern training methods at the company
K8.3	Top management involves middle and junior managers in the decision-making process.	Managers at middle and junior levels follow instructions more than creating proposals in their jobs
		The management style does not encourage and motive the staff to be innovative and efficient

6.3.1.9. Communication

Table 6.39 reveals that each sub-factor of communication shows a different level of negative correlation with some TQM barriers; these ranged from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.040. Based on the correlation analysis, sub-factor 1 indicates a medium strength correlation with lack of delegation of authority and responsibility and lack of teamwork in addition to a low strength correlation with resistance to change and bureaucratic management. While, sub-factor 2 shows a medium strength correlation with a lack of delegation of authority and responsibility. Simultaneously, sub-factor 3 shows a medium strength correlation with resistance to change and a low strength correlation with bureaucratic management.

Table 6.39 Spearman's Correlation for Communication with Barriers of TQM.

Barriers of TQM			Communication		
			K9.1	K9.2	K9.3
Poor understanding and insufficient knowledge of TQM.	B1.1	Correlation Coefficient	0.091	-0.103	-0.117
		Sig. (2-tailed)	0.327	0.267	0.208
		N	118	118	118
	B1.2	Correlation Coefficient	-0.106	-0.098	-0.116
		Sig. (2-tailed)	0.252	0.289	0.212
		N	118	118	118
	B1.3	Correlation Coefficient	-0.022	-0.081	0.003
		Sig. (2-tailed)	0.815	0.382	0.972
		N	118	118	118
Resistance to change.	B2.1	Correlation Coefficient	0.128	0.106	0.085
		Sig. (2-tailed)	0.164	0.247	0.355
		N	118	118	118
	B2.2	Correlation Coefficient	0.101	0.173	**-.361****
		Sig. (2-tailed)	0.277	0.061	0.004
		N	118	118	118
	B2.3	Correlation Coefficient	**-.190***	0.037	0.102
		Sig. (2-tailed)	0.040	0.691	0.272
		N	118	118	118
Lack of delegation of authority and responsibility.	B3.1	Correlation Coefficient	**-.322****	-0.161	-0.151
		Sig. (2-tailed)	0.000	0.081	0.103
		N	118	118	118
	B3.2	Correlation Coefficient	-0.010	**-.396****	0.155
		Sig. (2-tailed)	0.913	0.001	0.095
		N	118	118	118
	B3.3	Correlation Coefficient	-0.135	0.065	-0.027
		Sig. (2-tailed)	0.146	0.487	0.775
		N	118	118	118
Lack of teamwork.	B4.1	Correlation Coefficient	-0.032	-0.040	-0.160
		Sig. (2-tailed)	0.730	0.665	0.083
		N	118	118	118
	B4.2	Correlation Coefficient	**-.337****	0.102	-0.140
		Sig. (2-tailed)	0.010	0.272	0.130
		N	118	118	118
	B4.3	Correlation Coefficient	-0.166	-0.110	-0.164
		Sig. (2-tailed)	0.073	0.234	0.075
		N	118	118	118
Lack of TQM experts.	B5.1	Correlation Coefficient	0.143	-0.057	0.077
		Sig. (2-tailed)	0.123	0.539	0.409
		N	118	118	118
	B5.2	Correlation Coefficient	0.076	0.081	0.058
		Sig. (2-tailed)	0.411	0.381	0.530
		N	118	118	118
	B5.3	Correlation Coefficient	0.024	0.115	0.124
		Sig. (2-tailed)	0.799	0.215	0.179
		N	118	118	118
Bureaucratic management.	B6.1	Correlation Coefficient	0.078	0.029	-0.018
		Sig. (2-tailed)	0.402	0.753	0.847
		N	118	118	118
	B6.2	Correlation Coefficient	0.045	-0.005	0.172
		Sig. (2-tailed)	0.631	0.960	0.062
		N	118	118	118
	B6.3	Correlation Coefficient	**-.203***	0.080	**-.226***
		Sig. (2-tailed)	0.027	0.387	0.014
		N	118	118	118
Poor ineffective training and development.	B7.1	Correlation Coefficient	-0.024	0.009	0.039
		Sig. (2-tailed)	0.800	0.921	0.676
		N	118	118	118
	B7.2	Correlation Coefficient	0.131	-0.008	-0.040
		Sig. (2-tailed)	0.157	0.935	0.664

		N	118	118	118
	B7.3	Correlation Coefficient	0.063	0.168	0.151
		Sig. (2-tailed)	0.502	0.070	0.106
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the data analysis above, Table 6.39 specifies the correlation results by showing the TQM key factor, communication, with its related sub-ordinated barriers of TQM. The correlated sub-ordinated barriers have been listed regarding the degree of the strength correlation from high to low. Table 6.40 will offer further explanation as follows:

- An effective coordination, in terms of exchanging and submitting the information between different managerial levels, will contribute to overcoming or reducing the negative impacts of the following barriers:
  1. Most of the staff are resistant to being involved in training and development programmes Lack of delegated authority from the top management to other managerial levels.
  2. Lack of delegated authority from the top management to other managerial levels
  3. Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team.
  4. The company focuses on the results more than the processes.
- Getting the required information from both internal and external sources within a given time, could contribute towards the negative impacts of lack delegation of work responsibility at the company.
- Using effective means of communication in the company's activities, will contribute to combating or reducing the negative impacts of the following barriers:
  1. It is difficult to change the existing attitude of middle and junior management.
  2. The company focuses on the results more than the processes.

Table 6.40 Summarizing Correlation Results for Communication with sub-ordinate barriers of TQM

Communication		Related TQM sub-ordinate barriers from high to low strength correlation
K9.1	There is an effective coordination in terms of exchanging and submitting the information between different managerial levels in the company.	Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team
		Lack of delegated authority from the top management to other managerial levels
		The company focuses on the results more than the processes
		Most of the staff are resistant to being involved in training and development programmes
K9.2	The company gets the required information from the varied internal and external sources in due time.	Work responsibilities are not delegated at the company
K9.3	The company uses the effective means of communication in its activities.	It is difficult to change the existing attitude of middle and junior management
		The company focuses on the results more than the processes

6.3.2. The Relationship between TQM Key Factors and TQM Benefits

This section will concentrate on the correlation analysis of TQM benefits, which are improving customer satisfaction, improving employee satisfaction, improving financial performance, eliminating waste and defects, and decreasing the company's impact on the environment. Each one of these five TQM benefits has been correlated with the nine key factors of TQM: Top management commitment, continuous improvement, process management, customer focus, training and development, quality culture, policy and strategy, employee empowerment and communication. The correlation analysis has been conducted via two stages. The first stage clarifies the degree of the strength correlation between the key factors of TQM and the benefits of TQM implementation. While the second stage summarises the relationship by listing the related sub-ordinate TQM key factors regarding their degree of the strength correlation with certain TQM benefit.

6.3.2.1. Improving Customer Satisfaction

Table 6.41 shows that each sub-benefit of improving customer satisfaction has a different level of positive correlation with some TQM key factors; these ranged from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.038. Based on the correlation analysis, sub-benefit 1 shows a medium strength correlation with continuous improvement, and communication in addition to

a low strength correlation with process management and customer focus. While, sub-benefit 2 demonstrates a medium strength correlation with communication and a low strength correlation with top management commitment, continuous improvement and process management. At the same time, sub-benefit 3 indicates a medium strength correlation with top management commitment, continuous improvement and customer focus as well as a low strength correlation with process management.

Table 6.41 Spearman's Correlation for Improving Customer Satisfaction with TQM key Factors

Key factors of TQM			Improving customer satisfaction		
			F1.1	F1.2	F1.3
Top management commitment.	K1.1	Correlation Coefficient	0.107	0.062	**.372****
		Sig. (2-tailed)	0.250	0.503	0.004
		N	118	118	118
	K1.2	Correlation Coefficient	0.139	**.214***	0.131
		Sig. (2-tailed)	0.133	0.020	0.156
		N	118	118	118
	K1.3	Correlation Coefficient	0.091	0.139	-0.008
		Sig. (2-tailed)	0.327	0.132	0.933
		N	118	118	118
Continuous improvement.	K2.1	Correlation Coefficient	0.118	0.086	0.150
		Sig. (2-tailed)	0.202	0.355	0.104
		N	118	118	118
	K2.2	Correlation Coefficient	0.172	**.223***	**.430****
		Sig. (2-tailed)	0.063	0.015	0.000
		N	118	118	118
	K2.3	Correlation Coefficient	**.347****	-0.031	0.033
		Sig. (2-tailed)	0.006	0.739	0.724
		N	118	118	118
Process management.	K3.1	Correlation Coefficient	0.065	0.081	0.076
		Sig. (2-tailed)	0.488	0.383	0.415
		N	118	118	118
	K3.2	Correlation Coefficient	0.117	0.011	0.033
		Sig. (2-tailed)	0.205	0.907	0.726
		N	118	118	118
	K3.3	Correlation Coefficient	**.210***	**.198***	**.188***
		Sig. (2-tailed)	0.018	0.032	0.038
		N	118	118	118
Customer focus.	K4.1	Correlation Coefficient	0.037	0.000	0.082
		Sig. (2-tailed)	0.688	0.997	0.363
		N	118	118	118
	K4.2	Correlation Coefficient	**.210***	0.150	**.391****
		Sig. (2-tailed)	0.016	0.104	0.001
		N	118	118	118
	K4.3	Correlation Coefficient	0.098	0.072	0.116
		Sig. (2-tailed)	0.290	0.440	0.204
		N	118	118	118
Training and development.	K5.1	Correlation Coefficient	-0.143	-0.155	-0.022
		Sig. (2-tailed)	0.123	0.094	0.814
		N	118	118	118
	K5.2	Correlation Coefficient	-0.168	-0.092	0.063
		Sig. (2-tailed)	0.070	0.322	0.422
		N	118	118	118
	K5.3	Correlation Coefficient	-0.146	-0.083	0.084
		Sig. (2-tailed)	0.114	0.374	0.364
		N	118	118	118
Quality culture.	K6.1	Correlation Coefficient	0.088	0.040	0.081
		Sig. (2-tailed)	0.296	0.670	0.383

		N	118	118	118
	K6.2	Correlation Coefficient	0.072	0.084	0.092
		Sig. (2-tailed)	0.432	0.365	0.336
		N	118	118	118
	K6.3	Correlation Coefficient	0.074	0.152	0.062
		Sig. (2-tailed)	0.410	0.100	0.422
		N	118	118	118
Policy and strategy.	K7.1	Correlation Coefficient	0.178	-0.103	-0.048
		Sig. (2-tailed)	0.066	0.267	0.596
		N	118	118	118
	K7.2	Correlation Coefficient	0.018	-0.110	0.081
		Sig. (2-tailed)	0.848	0.237	0.383
		N	118	118	118
	K7.3	Correlation Coefficient	0.003	-0.01	0.160
		Sig. (2-tailed)	0.978	0.911	0.084
		N	118	118	118
Employee empowerment.	K8.1	Correlation Coefficient	-0.006	0.086	-0.128
		Sig. (2-tailed)	0.953	0.386	0.167
		N	118	118	118
	K8.2	Correlation Coefficient	0.081	-0.031	-0.008
		Sig. (2-tailed)	0.382	0.737	0.934
		N	118	118	118
	K8.3	Correlation Coefficient	0.025	0.081	0.073
		Sig. (2-tailed)	0.790	0.383	0.430
		N	118	118	118
Communication.	K9.1	Correlation Coefficient	-0.049	0.090	0.088
		Sig. (2-tailed)	0.598	0.335	0.345
		N	118	118	118
	K9.2	Correlation Coefficient	**.348****	0.072	0.169
		Sig. (2-tailed)	0.004	0.440	0.068
		N	118	118	118
	K9.3	Correlation Coefficient	0.160	**.346****	0.124
		Sig. (2-tailed)	0.084	0.009	0.182
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the analysis above, Table 6.41 explains the correlation results by showing the TQM benefit, improving customer satisfaction, with its related sub-ordinate TQM key factors. The correlated sub-ordinate key factors have been listed regarding the degree of the strength correlation from high to low. Table 6.42, will offer further explanation as follows:

- To enhance the relationship between the company and its customers will require the following factors:
  1. The company emphasises the best implementation of continuous improvement processes for all tasks at all levels.
  2. The company uses and follows clear working procedures and instructions.
  3. The company understands the needs of both its customers and markets well.
  4. The company gets the required information from the varied internal and external sources in due time.
- To reduce customer complaints will require the following factors:

1. Top management is inclined to allocate adequate time and resources for quality management.
2. The company emphasises improvement rather than maintenance.
3. The company uses and follows clear working procedures and instructions.
4. The company uses the effective means of communication in its activities.

- Meeting customer needs and requirements would require the following factors:
  1. Top management continually demonstrates its commitment to quality.
  2. The company emphasises improvement rather than maintenance.
  3. The company uses and follows clear working procedures and instructions.
  4. The company understands the needs of both its customers and markets well.

Table 6.42 Correlation Results for Improving Customer Satisfaction with sub-ordinate key factors of TQM.

Improving customer satisfaction		Related TQM sub-ordinate key factors from high to low strength correlation
F1.1	Enhance the relationship between the company and its customers.	The company gets the required information from the varied internal and external sources in due time
		The company emphasises the best implementation of continuous improvement processes for all tasks at all levels.
		The company uses and follows clear working procedures and instructions.
		The company understands the needs of both its customers and markets well.
F1.2	Reduce customer's complaints.	The company uses the effective means of communication in its activities
		The company emphasises improvement rather than maintenance.
		Top management is inclined to allocate adequate time and resources for quality management.
		The company uses and follows clear working procedures and instructions.
F1.3	Meeting customers' needs and requirements.	The company emphasises improvement rather than maintenance
		The company understands the needs of both its customers and markets well
		Top management continually demonstrates its commitment to quality
		The company uses and follows clear working procedures and instructions

6.3.2.2. Improving Employee Satisfaction

Table 6.43 indicates that each sub-benefit of improving employee satisfaction reveals a different level of positive correlation with some TQM key factors; these ranged from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.048. Based on the correlation analysis, sub-benefit 1 reveals a medium strength correlation with top management commitment and a low strength correlation with quality culture, employee empowerment and communication. While, sub- benefit 2 states a medium strength correlation with training and development and employee empowerment in addition to a low strength correlation with continuous improvement and communication. At the same time, sub-benefit 3 indicates a medium strength correlation with top management commitment and continuous improvement as well as a low strength correlation with quality culture.

Table 6.43 Spearman's Correlation for Improving Employee Satisfaction with TQM Key Factors

Key factors of TQM			Improving employee satisfaction		
			F2.1	F2.2	F2.3
Top management commitment.	K1.1	Correlation Coefficient	**.345****	0.057	**.352****
		Sig. (2-tailed)	0.000	0.538	0.000
		N	118	118	118
	K1.2	Correlation Coefficient	0.095	0.096	0.107
		Sig. (2-tailed)	0.305	0.302	0.248
		N	118	118	118
	K1.3	Correlation Coefficient	0.063	0.028	0.133
		Sig. (2-tailed)	0.500	0.760	0.151
		N	118	118	118
Continuous improvement.	K2.1	Correlation Coefficient	0.164	-0.008	**.353****
		Sig. (2-tailed)	0.076	0.934	0.000
		N	118	118	118
	K2.2	Correlation Coefficient	0.057	0.103	0.170
		Sig. (2-tailed)	0.538	0.268	0.162
		N	118	118	118
	K2.3	Correlation Coefficient	0.053	**.202***	0.034
		Sig. (2-tailed)	0.570	0.026	0.718
		N	118	118	118
Process management.	K3.1	Correlation Coefficient	0.161	-0.018	0.110
		Sig. (2-tailed)	0.082	0.843	0.238
		N	118	118	118
	K3.2	Correlation Coefficient	0.102	0.122	0.019
		Sig. (2-tailed)	0.274	0.186	0.839
		N	118	118	118
	K3.3	Correlation Coefficient	0.116	0.056	0.034
		Sig. (2-tailed)	0.211	0.549	0.718
		N	118	118	118
Customer focus.	K4.1	Correlation Coefficient	0.153	0.122	0.097
		Sig. (2-tailed)	0.099	0.186	0.298
		N	118	118	118
	K4.2	Correlation Coefficient	0.048	-0.142	0.038
		Sig. (2-tailed)	0.615	0.131	0.676
		N	118	118	118
	K4.3	Correlation Coefficient	-0.106	0.151	0.003
		Sig. (2-tailed)	0.252	0.104	0.972

		N	118	118	118
Training and development.	K5.1	Correlation Coefficient	0.144	-0.006	0.021
		Sig. (2-tailed)	0.121	0.946	0.818
		N	118	118	118
	K5.2	Correlation Coefficient	-0.092	**.394****	0.034
		Sig. (2-tailed)	0.322	0.001	0.718
		N	118	118	118
	K5.3	Correlation Coefficient	0.028	-0.067	0.116
		Sig. (2-tailed)	0.759	0.468	0.211
		N	118	118	118
Quality culture.	K6.1	Correlation Coefficient	0.170	0.161	0.114
		Sig. (2-tailed)	0.066	0.082	0.138
		N	118	118	118
	K6.2	Correlation Coefficient	0.034	0.069	0.065
		Sig. (2-tailed)	0.718	0.455	0.485
		N	118	118	118
	K6.3	Correlation Coefficient	**.183***	0.163	**.188***
		Sig. (2-tailed)	0.047	0.078	0.041
		N	118	118	118
Policy and strategy.	K7.1	Correlation Coefficient	-0.031	0.030	-0.067
		Sig. (2-tailed)	0.739	0.750	0.468
		N	118	118	118
	K7.2	Correlation Coefficient	0.119	0.074	0.164
		Sig. (2-tailed)	0.201	0.429	0.072
		N	118	118	118
	K7.3	Correlation Coefficient	0.093	0.174	0.123
		Sig. (2-tailed)	0.297	0.059	0.185
		N	118	118	118
Employee empowerment.	K8.1	Correlation Coefficient	-0.039	-0.077	0.076
		Sig. (2-tailed)	0.677	0.408	0.411
		N	118	118	118
	K8.2	Correlation Coefficient	**.182***	**.337****	0.018
		Sig. (2-tailed)	0.042	0.008	0.843
		N	118	118	118
	K8.3	Correlation Coefficient	-0.100	0.040	0.065
		Sig. (2-tailed)	0.284	0.664	0.486
		N	118	118	118
Communication.	K9.1	Correlation Coefficient	**.183***	0.052	0.028
		Sig. (2-tailed)	0.048	0.574	0.759
		N	118	118	118
	K9.2	Correlation Coefficient	0.170	0.066	0.144
		Sig. (2-tailed)	0.066	0.479	0.116
		N	118	118	118
	K9.3	Correlation Coefficient	0.171	**.213***	0.170
		Sig. (2-tailed)	0.063	0.020	0.066
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the above analysis, Table 6.43 shows the correlation results by revealing the TQM benefit, improving employee satisfaction, with its related sub-ordinate TQM key factors. The correlated sub-ordinate key factors have been listed regarding the degree of the strength of correlation from high to low. Subsequently, Table 6.44, will be explained as follows:

- To increase employee's motivation to update their skills and knowledge, would require the following factors.

1. Top management continually demonstrates its commitment to quality.

2. There is an ongoing creation of quality culture among employees.
3. The management motivates employees to suggest and create ideas for work improvement.
4. There is an effective coordination in terms of exchanging and submitting the information between different managerial levels in the company.

- A decrease in the average number of employees' complaints, would require the following factor:
  1. The company emphasises the best implementation of continuous improvement processes for all tasks at all levels.
  2. Resources are available to cover employees training needs and development.
  3. The management motivates employees to suggest and create ideas for work improvement.
  4. The company uses the effective means of communication in its activities.

- To improve the working environment, would require the following factors:
  1. Top management continually demonstrates its commitment to quality.
  2. All company employees believe that quality improvement is their individual responsibility.
  3. There is an ongoing creation of quality culture among employees.

Table 6.44 Correlation Results for Improving Employee Satisfaction with sub-ordinate key factors of TQM

Improving employee satisfaction		Related TQM sub-ordinate key factors from high to low strength correlation
F2.1	Increase employees' motivation to update their skills and knowledge.	Top management continually demonstrates its commitment to quality
		Adopting TQM culture will assist the company to fit with the changes in the business environment
		There is an effective coordination in terms of exchanging and submitting the information between different managerial levels in the company
		The management motivates employees to suggest and create ideas for work improvement
F2.2	The average number of employees' complaints is decreasing.	Resources are available to cover employees training needs and development
		The management motivates employees to suggest and create ideas for work improvement
		The company uses the effective means of communication in its activities
		The company emphasises the best implementation of continuous improvement processes for all tasks at all levels
F3.3	Improve working environment.	All company employees believe that quality improvement is their individual responsibility
		Top management continually demonstrates its commitment to quality
		There is an ongoing creation of quality culture among employees

6.3.2.3. Eliminating Waste and Defects

Table 6.45 shows that each sub-benefit of eliminating waste and improving resources and outputs clarifies a different level of positive correlation with some TQM key factors. These ranged from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.038. Based on the correlation analysis, sub-benefit 1 reveals a medium strength correlation with policy and strategy and a low strength correlation with top management commitment. While, sub- benefit 2 demonstrates a low strength correlation with process management and employee empowerment. At the same time, sub-benefit 3 indicates a medium strength correlation with continuous improvement, employee empowerment and communication in addition to a low strength correlation with training and development.

Table 6.45 Spearman's Correlation for Eliminating Waste and Defects with TQM key factors

Key factors of TQM			Eliminating waste and defects		
			F3.1	F3.2	F3.3
Top management commitment.	K1.1	Correlation Coefficient	-0.072	0.005	0.091
		Sig. (2-tailed)	0.441	0.955	0.325
		N	118	118	118
	K1.2	Correlation Coefficient	0.008	0.053	0.090
		Sig. (2-tailed)	0.933	0.565	0.330
		N	118	118	118
	K1.3	Correlation Coefficient	**.191***	0.066	0.005
		Sig. (2-tailed)	0.038	0.477	0.955
		N	118	118	118
Continuous improvement.	K2.1	Correlation Coefficient	-0.114	0.130	-0.045
		Sig. (2-tailed)	0.220	0.160	0.631
		N	118	118	118
	K2.2	Correlation Coefficient	0.112	0.160	**.366****
		Sig. (2-tailed)	0.227	0.084	0.004
		N	118	118	118
	K2.3	Correlation Coefficient	0.072	0.167	0.060
		Sig. (2-tailed)	0.437	0.070	0.517
		N	118	118	118
Process management.	K3.1	Correlation Coefficient	-0.049	-0.075	0.079
		Sig. (2-tailed)	0.595	0.421	0.398
		N	118	118	118
	K3.2	Correlation Coefficient	-0.087	**.200***	0.123
		Sig. (2-tailed)	0.350	0.030	0.184
		N	118	118	118
	K3.3	Correlation Coefficient	-0.105	0.160	0.144
		Sig. (2-tailed)	0.259	0.083	0.121
		N	118	118	118
Customer focus.	K4.1	Correlation Coefficient	-0.119	-0.065	-0.011
		Sig. (2-tailed)	0.201	0.484	0.909
		N	118	118	118
	K4.2	Correlation Coefficient	0.075	0.156	0.179
		Sig. (2-tailed)	0.422	0.092	0.053
		N	118	118	118
	K4.3	Correlation Coefficient	0.130	0.009	0.068
		Sig. (2-tailed)	0.160	0.927	0.464
		N	118	118	118
Training and development.	K5.1	Correlation Coefficient	0.057	-0.002	0.012
		Sig. (2-tailed)	0.538	0.979	0.901
		N	118	118	118
	K5.2	Correlation Coefficient	0.109	-0.164	**.227***
		Sig. (2-tailed)	0.241	0.076	0.014
		N	118	118	118
	K5.3	Correlation Coefficient	-0.073	-0.098	-0.171
		Sig. (2-tailed)	0.433	0.290	0.063
		N	118	118	118
Quality culture.	K6.1	Correlation Coefficient	-0.026	0.133	-0.002
		Sig. (2-tailed)	0.778	0.151	0.981
		N	118	118	118
	K6.2	Correlation Coefficient	0.009	0.151	0.077
		Sig. (2-tailed)	0.922	0.103	0.412
		N	118	118	118
	K6.3	Correlation Coefficient	-0.034	0.076	0.180
		Sig. (2-tailed)	0.714	0.415	0.052
		N	118	118	118
Policy and strategy.	K7.1	Correlation Coefficient	0.088	-0.083	-0.163
		Sig. (2-tailed)	0.344	0.374	0.077
		N	118	118	118
	K7.2	Correlation Coefficient	**.347****	-0.052	0.072
		Sig. (2-tailed)	0.007	0.580	0.440

		N	118	118	118
	K7.3	Correlation Coefficient	-0.062	0.026	-0.126
		Sig. (2-tailed)	0.503	0.778	0.173
		N	118	118	118
Employee empowerment.	K8.1	Correlation Coefficient	0.062	0.096	**.340****
		Sig. (2-tailed)	0.502	0.302	0.009
		N	118	118	118
	K8.2	Correlation Coefficient	0.098	**.199***	0.179
		Sig. (2-tailed)	0.289	0.031	0.053
		N	118	118	118
	K8.3	Correlation Coefficient	0.124	0.032	0.081
		Sig. (2-tailed)	0.180	0.732	0.386
		N	118	118	118
Communication.	K9.1	Correlation Coefficient	-0.119	0.115	0.119
		Sig. (2-tailed)	0.201	0.213	0.186
		N	118	118	118
	K9.2	Correlation Coefficient	-0.027	0.021	**.343****
		Sig. (2-tailed)	0.772	0.825	0.008
		N	118	118	118
	K9.3	Correlation Coefficient	0.089	-0.053	0.178
		Sig. (2-tailed)	0.338	0.569	0.053
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Constructed on the above analysis, Table 6.45 indicates the correlation results by revealing the TQM benefit, eliminating waste and defects, with its related sub-ordinate TQM key factors. The correlated sub-ordinate key factors have been listed regarding the degree of the strength correlation from high to low. An explanation in Table 6.46, will follow:

- Enhancing the necessary measurements for reducing waste and interruptions related to daily work activities will require the following factors:
  1. Top management uses performance indicators to ensure adequate performance.
  2. The company's staff particularly middle and junior managers have clear knowledge about policy and strategy related to quality management.
- Decreasing the average number of defects and errors in work activities, would require the following factors:
  1. The management provides relevant measurements to cover the key processes in the company.
  2. The management provides relevant measurements to cover the key processes in the company.
- Improving effective utilisation of company's resources would require the following factors:
  1. The company emphasises improvement rather than maintenance.
  2. Resources are available to cover employees training needs and development.
  3. Employees have authority in their positions to make necessary actions when required.

4. The company gets the required information from the varied internal and external sources in due time.

Table 6.46 Correlation Results for Eliminating Waste and Defects with sub-ordinate key factors of TQM

Eliminating waste and defects		Related TQM sub-ordinate key factors from high to low strength correlation
F3.1	Enhancing the necessary measurements for reducing waste and interruptions related to daily work activities.	The company's staff particularly middle and junior managers have clear knowledge about policy and strategy related to quality management
		Top management uses performance indicators to ensure adequate performance
F3.2	Decreasing the average number of defects and errors in work activities.	The management provides relevant measurements to cover the key processes in the company
		The management motivates employees to suggest and create ideas for work improvement
F3.3	Improving effective utilisation of company's resources.	The company emphasises improvement rather than maintenance
		The company gets the required information from the varied internal and external sources in due time
		Employees have authority in their positions to make necessary actions when required
		Resources are available to cover employees training needs and development

6.3.2.4. Improving Financial Performance

Table 6.47 shows that each sub-benefit of improving financial performance displays a different level of positive correlation with some TQM key factors. Ranging from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.034. Based on the correlation analysis, sub-benefit 1 reveals a medium strength correlation with process management and quality culture in addition to a low strength correlation with continuous improvement. While, sub- benefit 2 states a medium strength correlation with policy and strategy in addition to a low strength correlation with quality culture and communication. Finally, sub-benefit 3 indicates a medium strength correlation with customer focus and a low strength correlation with continuous improvement and communication.

Table 6.47 Spearman's Correlation Results for Improving Financial Performance with TQM key factors

Key factors of TQM			Improving financial performance		
			F4.1	F4.2	F4.3
Top management commitment.	K1.1	Correlation Coefficient	0.142	0.120	0.008
		Sig. (2-tailed)	0.125	0.197	0.931
		N	118	118	118
	K1.2	Correlation Coefficient	0.081	-0.015	0.044
		Sig. (2-tailed)	0.383	0.875	0.638
		N	118	118	118
	K1.3	Correlation Coefficient	0.087	-0.042	0.035
		Sig. (2-tailed)	0.348	0.651	0.710
		N	118	118	118
Continuous improvement.	K2.1	Correlation Coefficient	-0.094	-0.033	0.148
		Sig. (2-tailed)	0.297	0.737	0.118
		N	118	118	118
	K2.2	Correlation Coefficient	**.212***	0.154	**.191***
		Sig. (2-tailed)	0.020	0.096	0.038
		N	118	118	118
	K2.3	Correlation Coefficient	0.103	0.135	0.032
		Sig. (2-tailed)	0.268	0.145	0.731
		N	118	118	118
Process management.	K3.1	Correlation Coefficient	**.395****	0.127	0.139
		Sig. (2-tailed)	0.001	0.172	0.133
		N	118	118	118
	K3.2	Correlation Coefficient	0.105	0.068	-0.033
		Sig. (2-tailed)	0.253	0.501	0.701
		N	118	118	118
	K3.3	Correlation Coefficient	0.107	0.062	-0.035
		Sig. (2-tailed)	0.111	0.158	0.072
		N	118	118	118
Customer focus.	K4.1	Correlation Coefficient	0.105	0.076	0.040
		Sig. (2-tailed)	0.258	0.411	0.664
		N	118	118	118
	K4.2	Correlation Coefficient	0.167	-0.046	0.169
		Sig. (2-tailed)	0.070	0.619	0.068
		N	118	118	118
	K4.3	Correlation Coefficient	0.170	0.177	**.355****
		Sig. (2-tailed)	0.066	0.056	0.005
		N	118	118	118
Training and development.	K5.1	Correlation Coefficient	-0.107	-0.020	-0.126
		Sig. (2-tailed)	0.249	0.827	0.173
		N	118	118	118
	K5.2	Correlation Coefficient	-0.038	-0.079	0.078
		Sig. (2-tailed)	0.679	0.405	0.409
		N	118	118	118
	K5.3	Correlation Coefficient	-0.039	-0.077	0.076
		Sig. (2-tailed)	0.000	0.138	0.000
		N	118	118	118
Quality culture.	K6.1	Correlation Coefficient	-0.109	-0.022	-0.128
		Sig. (2-tailed)	0.247	0.824	0.171
		N	118	118	118
	K6.2	Correlation Coefficient	-0.109	0.163	0.147
		Sig. (2-tailed)	0.253	0.079	0.116
		N	118	118	118
	K6.3	Correlation Coefficient	**.386****	**.206***	0.166
		Sig. (2-tailed)	0.002	0.025	0.078
		N	118	118	118
Policy and strategy.	K7.1	Correlation Coefficient	0.144	**.374****	0.135
		Sig. (2-tailed)	0.129	0.003	0.151

		N	118	118	118
	K7.2	Correlation Coefficient	0.028	0.084	0.076
		Sig. (2-tailed)	0.787	0.379	0.427
		N	118	118	118
	K7.3	Correlation Coefficient	0.134	-0.019	0.146
		Sig. (2-tailed)	0.128	0.838	0.115
		N	118	118	118
Employee empowerment.	K8.1	Correlation Coefficient	-0.044	-0.042	0.068
		Sig. (2-tailed)	0.639	0.653	0.467
		N	118	118	118
	K8.2	Correlation Coefficient	0.115	0.107	0.060
		Sig. (2-tailed)	0.213	0.248	0.521
		N	118	118	118
	K8.3	Correlation Coefficient	-0.020	0.007	-0.032
		Sig. (2-tailed)	0.830	0.939	0.732
		N	118	118	118
Communication.	K9.1	Correlation Coefficient	-0.071	0.006	0.093
		Sig. (2-tailed)	0.443	0.954	0.322
		N	118	118	118
	K9.2	Correlation Coefficient	0.174	0.178	0.181
		Sig. (2-tailed)	0.059	0.053	0.050
		N	118	118	118
	K9.3	Correlation Coefficient	0.174	**.196***	**.191***
		Sig. (2-tailed)	0.059	0.034	0.038
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the above analysis, Table 6.47 shows the correlation results by demonstrating the TQM benefit, improving financial performance, with its related sub-ordinate TQM key factors. The correlated sub-ordinate key factors have been listed regarding the degree of the strength correlation from high to low. An explanation in Table 6.48, will follow:

- Enhancing the company's profitability, would require the following factors:
  1. The company emphasises improvement rather than maintenance.
  2. The company has appropriate management measures to control and improve the production or delivery process.
  3. There is an ongoing creation of quality culture among employees.
- An improvement in the business growth rate in the market, would require the following factors:
  1. There is an ongoing creation of quality culture among employees.
  2. The concept of quality management is reflected in the company's values, vision and mission.
  3. The company uses the effective means of communication in its activities.
- Increasing the company’s market share, would require the following factors;
  1. The company emphasises improvement rather than maintenance.
  2. The company is fully aware of market trends.
  3. The company uses the effective means of communication in its activities.

Table 6.48 Correlation Results for Improving Financial Performance with sub-ordinate key factors of TQM

Improving financial performance		Related TQM sub-ordinate key factors from high to low strength correlation
F4.1	Enhance company's profitability.	The company has appropriate management measures to control and improve the production or delivery process
		There is an ongoing creation of quality culture among employees
		The company emphasises improvement rather than maintenance
F4.2	An improvement in the business growth rate in the market.	The concept of quality management is reflected in the company's values, vision and mission
		There is an ongoing creation of quality culture among employees
		The company uses the effective means of communication in its activities
F4.3	An increase in the company's market share.	The company is fully aware of market trends
		The company emphasises improvement rather than maintenance
		The company uses the effective means of communication in its activities

6.3.2.5. Decreasing the company's Impact on the Environment

Table 6.49 shows that each sub-benefit of decreasing the company's impact on the environment displays a different level of positive correlation with some TQM key factors. These ranged from a medium strength correlation, where the ρ-value was less than 0.01, to a low strength correlation, where the ρ-value was equal to 0.039. Based on the correlation analysis, sub-benefit 1 reveals a low strength correlation with continuous improvement and policy and strategy. Whereas, sub- benefit 2 states a medium strength correlation with continuous improvement, process management, customer focus and training and development. While, sub-benefit 3 indicates a medium strength correlation with top management commitment and training and development in addition to a low strength correlation with customer focus.

Table 6.49 Spearman's Correlation Results for Decreasing the Company's Impact on the Environment

Key factors of TQM			Decreasing the company's Impact on the Environment		
			F5.1	F5.2	F5.3
Top management commitment.	K1.1	Correlation Coefficient	0.005	0.153	**.392****
		Sig. (2-tailed)	0.958	0.097	0.001
		N	118	118	118
	K1.2	Correlation Coefficient	0.106	0.071	0.086
		Sig. (2-tailed)	0.253	0.446	0.352
		N	118	118	118
	K1.3	Correlation Coefficient	0.047	0.003	0.114
		Sig. (2-tailed)	0.610	0.970	0.219
		N	118	118	118
Continuous improvement.	K2.1	Correlation Coefficient	**.190***	**.353****	0.097
		Sig. (2-tailed)	0.039	0.000	0.294
		N	118	118	118
	K2.2	Correlation Coefficient	0.169	0.062	-0.003
		Sig. (2-tailed)	0.068	0.481	0.971
		N	118	118	118
	K2.3	Correlation Coefficient	0.129	0.119	0.121
		Sig. (2-tailed)	0.163	0.199	0.190
		N	118	118	118
Process management.	K3.1	Correlation Coefficient	0.128	0.083	0.075
		Sig. (2-tailed)	0.168	0.379	0.421
		N	118	118	118
	K3.2	Correlation Coefficient	0.059	**.352****	-0.059
		Sig. (2-tailed)	0.525	0.006	0.526
		N	118	118	118
	K3.3	Correlation Coefficient	0.071	0.157	0.182
		Sig. (2-tailed)	0.425	0.089	0.049
		N	118	118	118
Customer focus.	K4.1	Correlation Coefficient	0.001	0.074	**.208***
		Sig. (2-tailed)	0.994	0.426	0.024
		N	118	118	118
	K4.2	Correlation Coefficient	0.053	0.101	-0.035
		Sig. (2-tailed)	0.568	0.272	0.705
		N	118	118	118
	K4.3	Correlation Coefficient	0.141	**.352****	0.181
		Sig. (2-tailed)	0.128	0.006	0.050
		N	118	118	118
Training and development.	K5.1	Correlation Coefficient	0.057	0.143	-0.129
		Sig. (2-tailed)	0.538	0.123	0.165
		N	118	118	118
	K5.2	Correlation Coefficient	0.110	**.375****	-0.002
		Sig. (2-tailed)	0.238	0.003	0.980
		N	118	118	118
	K5.3	Correlation Coefficient	0.019	-0.079	**.342****
		Sig. (2-tailed)	0.839	0.397	0.008
		N	118	118	118
Quality culture.	K6.1	Correlation Coefficient	0.007	0.020	-0.047
		Sig. (2-tailed)	0.942	0.830	0.611
		N	118	118	118
	K6.2	Correlation Coefficient	0.122	0.021	0.003
		Sig. (2-tailed)	0.189	0.818	0.971
		N	118	118	118
	K6.3	Correlation Coefficient	0.127	0.042	0.122
		Sig. (2-tailed)	0.169	0.654	0.188
		N	118	118	118
Policy and strategy.	K7.1	Correlation Coefficient	-0.063	0.110	-0.122
		Sig. (2-tailed)	0.501	0.235	0.190
		N	118	118	118

	K7.2	Correlation Coefficient	0.078	0.145	0.139
		Sig. (2-tailed)	0.403	0.116	0.133
		N	118	118	118
	K7.3	Correlation Coefficient	**.227***	0.006	0.028
		Sig. (2-tailed)	0.014	0.944	0.761
		N	118	118	118
Employee empowerment.	K8.1	Correlation Coefficient	-0.126	0.077	-0.095
		Sig. (2-tailed)	0.175	0.412	0.308
		N	118	118	118
	K8.2	Correlation Coefficient	0.161	0.055	0.170
		Sig. (2-tailed)	0.081	0.559	0.066
		N	118	118	118
	K8.3	Correlation Coefficient	0.086	0.019	0.032
		Sig. (2-tailed)	0.353	0.838	0.727
		N	118	118	118
Communication.	K9.1	Correlation Coefficient	0.053	0.052	0.014
		Sig. (2-tailed)	0.569	0.574	0.880
		N	118	118	118
	K9.2	Correlation Coefficient	0.065	0.123	-0.131
		Sig. (2-tailed)	0.482	0.183	0.158
		N	118	118	118
	K9.3	Correlation Coefficient	0.070	0.149	0.145
		Sig. (2-tailed)	0.452	0.108	0.118
		N	118	118	118
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Based on the information above, Table 6.49 describes the correlation results by demonstrating the TQM benefit, decreasing the company's impact on the environment, with its related sub-ordinate TQM key factors. The correlated sub-ordinate key factors have been listed regarding the degree of the strength correlation from high to low. An explanation in Table 6.50, will follow:

- To contribute to establishing good relations within the community where the company operates, would require the following factors:
  1. All company employees believe that quality improvement is their individual responsibility.
  2. The policy and strategy related to quality management is managed and reviewed on a regular basis.

- To minimise the negative effects of the company's activities on the surrounding environment, would require the following factors:
  1. All company employees believe that quality improvement is their individual responsibility.
  2. The management provides relevant measurements to cover the key processes in the company.
  3. The company is fully aware of market trends.

4. Resources are available to cover employees training needs and development.

- To enhance the contribution of the company in both social and environmental activities, as part of the company's social and environmental responsibility, would require the following factors:
  1. Top management continually demonstrates its commitment to quality.
  2. The company determines current and future customer requirements and expectations.
  3. The company evaluates training outputs based on a regular basis.

Table 6.50 Correlation Results for Decreasing the Company's Impact on the Environment with sub-ordinate key factors of TQM

Decreasing the company's Impact on the Environment		Related TQM sub-ordinate key factors from high to low strength correlation
F5.1	Contribute to establishing good relations with the community, where the company carries out its activities.	The policy and strategy related to quality management is managed and reviewed on a regular basis
		All company employees believe that quality improvement is their individual responsibility.
F5.2	Minimizing the negative effects of the company's activities on the surrounding environment to the lowest level.	Resources are available to cover employees training needs and development
		All company employees believe that quality improvement is their individual responsibility.
		The management provides relevant measurements to cover the key processes in the company
		The company is fully aware of market trends
F5.3	Enhance the contribution of the company in both social and environmental activities, as part of the company's social and environmental responsibility.	Top management continually demonstrates its commitment to quality
		The company evaluates training outputs based on a regular basis
		The company determines current and future customer requirements and expectations

6.4. Chapter Summary

The quantitative data analysis has revealed several significant findings that can be used to shed light on the topic and develop conclusions, with the descriptive and inferential statistical analysis results presenting the empirical findings of the study, using the primary data collected through questionnaire survey which is divided into five sections. The first section related to statistical data and charts, which have been applied to identify the main characteristics of the respondents. With respect to the second section, which is related to TQM knowledge and awareness, the findings show that the studied company is still in the initial stages of the TQM journey.

The other three sections revealed how the survey questions were answered by the respondents based on mean, standard deviation and percentage used for the questionnaire, built on five points of Likert scale. Thus, the third section has focused on the key factors required for TQM implementation in the company, with the value of each TQM factor measured by a group of questions based on the Likert scale. Thus, the respondents' answers varied from high to moderate agreement with each one of them.

Section four was dedicated to the barriers that hinder TQM implementation, which consist seven main berries. The results showed that almost all the statements received a high degree of support from the participants. Hence, the respondent’s answers mainly revealed a high agreement with the seven barriers of TQM mentioned. The final section focused on the potential benefits of applying TQM and included five different benefits. The results of this section clarified that all the TQM potential benefits received a high degree of support from the participants.

With respect to inferential statistics, identification of the relationships between the barriers that hinder TQM implementation and the key factors has been analysed. This analysis revealed that there is an inverse correlation between each key factor of TQM and specific TQM barriers. In the same context, an identification of the relationship between the key factors of TQM and the benefits of TQM implementation was analysed. The results show five of the TQM benefits presented alongside their positive correlations.

CHAPTER SEVEN

DISCUSSION OF THE RESEARCH FINDINGS

Chapter 7: Discussion of the Research Findings

7.1. Introduction

This chapter discusses the key findings from the analysis of data derived from the semi-structured interviews and the questionnaire, which were presented in the previous two chapters. The literature review will also be considered as a method of triangulating. The findings will be discussed by dividing the data discussion into sections with relevance to the main aim of this research.

The research findings discussed in this chapter are structured as follows:

1. The level of TQM awareness and knowledge
2. The key factors required to facilitate TQM implementation
3. The barriers that hinder TQM implementation
4. The benefits of TQM implementation
5. The relationship between the barriers that hinder TQM and the key factors required for TQM implementation
6. The relationship between key factors of TQM and the benefit of TQM implementation.
7. The revised version of the conceptual framework based on the empirical findings
8. The validation and amendment of the findings related to the revised conceptual framework.

7.2. The level of TQM awareness and knowledge

The main purpose of making the level of **TQM awareness and knowledge** as one of the major objectives of this study was because it provides a reliable indicator regarding the extent of perception and understanding that the respondents have about the fundamental issues related to quality management in general and TQM in particular. Crosby (1996) reveals that awareness represents a major issue which can encourage and lead the whole company's staff to feel that they are responsible for attaining quality in all aspects. The results derived from the semi-structured interviews revealed that, there were different points of view regarding the meaning of quality. Most of the interviewees focused on customer satisfaction as the major concept that reflected the meaning of quality. This can be substantiated by the descriptive results in section 6.2.2.1 as the majority of the respondents suggested that the meaning of

quality was equivalent to customer satisfaction. This finding is similar to that found in the literature by many researchers such as (Juran 1986; Ishikawa 1985; Oakland 2003). Juran (1986) stated that the awareness of TQM results in continual improvement process within an entire company and achieving better process outcomes.

The results in section 5.3.1.2 clarified that most of the interviewees had participated in a training program related to quality management initiatives, especially quality management system IS09001-2008, which had already been implemented by the company. Thus, they had an appropriate level of knowledge and awareness about the main issues of QMS ISO9001:2008. This further strengthens the findings from the analysis of the questionnaire data as depicted in section 6.2.2.2, which suggests that the vast majority of respondents, (59.1%) had better knowledge about QMS IS09001-2008. Noteworthy, however, was the fact that this finding fully contradicted the outcomes of Wong and Fung (1999) as they confirmed that the implementation of many quality programs in developing countries failed due to the lack of understanding of quality management.

With respect to the reason for implementing QMS ISO9001-2008 in the company, the qualitative analysis in section 5.3.1.3 reveals that the interviewees had two main reasons for implementing QMS. The first of these reasons was the improvement performance, as a number of studies, such as Karapetrovic and Saizarbitoria (2010) and Srivastav (2010), have found that a company's certification to QMS ISO9001-2008 was positively associated with improvement of its performance. The second reason was that of meeting the requirements of international oil companies working in the Iraqi oil industry; hence, the company aimed to achieve this certification in order to respond not only to internal requirements, but also to the external requirements, which means its customers and pressures of competitiveness. This finding is similar to that of Burns and Bush (2006) who stated that in order to cope with severe competition effectively and to enhance the competitiveness of the company, it was necessary to establish a strong relationship with its customers and meeting their requirements.

To find out the interviewees' opinions regarding their **conception of TQM**, the results in section 5.3.1.4 suggest that the majority of the interviewees did have knowledge of the concept of TQM. Additionally, most of them described TQM as a sophisticated management system to achieve quality and improve performance. This further strengthened the findings from the analysis of the questionnaire as illustrated in section 6.2.2.3 suggesting that the majority of the respondents answered that TQM was a management system. In line with the

literature, although TQM can be defined as a management system consisting of moral values, scientific practices and tools, with the aim of increasing and enhancing the satisfaction of internal and external customers with reduction of resources (Hellsten & Klefsjo, 2000). However, there are numerous definitions of TQM based on the perspective and background, interests as well as the degree of knowledge and awareness of authors, scholars or researchers.

In relation to awareness and understanding about the **importance of TQM,** the descriptive statistics in section 6.2.2.4 suggest that slightly more than half of the respondents believed that the importance of TQM implementation was improving the entire performance of the companies, while 29.1% of the participants agreed that the importance of TQM lay in providing a competitive advantage and 19.8% believed that the main importance of TQM implementation was the reduction of time, cost and waste. With respect to improving the entire performance, this finding corroborates the findings of the semi-structured interviews results in section 5.3.4, as all of the interviewees agreed that the main benefit of applying TQM was improving the company's entire performance. Also, the finding is similar to that found in the literature by Kumar et al. (2009); Moballeghi and Moghaddam (2011) and Gadenne and Sharma (2009). As regards the findings associated with the importance of TQM in providing a competitive advantage in addition to reducing time cost and waste, these findings are similar to that found in the literature by Gharakhani et al. (2013); Handfield et al. (1998) and Antony et al. (2002).

According to the findings that are related to the **familiarity with TQM key factors,** the descriptive analysis in section 6.2.2.5 reveals that the level of familiarity of the participants is considered to be high, in other words, the participants had extensive knowledge about the suggested key factors of TQM. The reason behind such high level of familiarity might be attributed to the fact that the IDC had achieved a remarkable objective by implementing QMS ISO9001:2008 (see section 5.2 in Chapter 5); thus, most of the suggested TQM key factors such as top management commitment, customer focus and continuous improvement complied with QMS ISO9001:2008. These findings are similar to those of Magd and Curry (2003) who found that QMS ISO: 9000 was an important aspect of TQM and that the combined implementation of these two approaches had led to achieving organisational success. Moreover, both approaches had a tendency to complement each other.

Although the philosophy of TQM is not implemented in Iraqi oil companies until this time. However, the overall outcomes of the findings of this section that relate to the level of

awareness and knowledge of the interviewees and other participants regarding quality and quality management in general and TQM, in particular, are considered to be more than acceptable.

7.3.The key factors required to facilitate TQM implementation

The second objective of this study was to identify the key factors required to facilitate TQM implementation in Iraqi oil companies. The findings reveal that there are nine key factors; therefore, this section involves discussing each factor separately by introducing the key findings that emerged from the analysis of the data from the semi-structured interviews and the questionnaire, and discussing these findings in the light of the relevant literature. These TQM key factors are:

7.3.1. Top Management Commitment

The success of all quality initiatives such as TQM starts from the commitment of top management. Leadership or top management commitment have been placed at the top of the list by most quality Models such as Malcolm Baldrige National Quality Model (MBNQA) and European Foundation for Quality Management (EFQM) for the purposes of effective quality management implementation (see sections 2.9.2 and 2.9.3). The primary data findings derived from the analysis of the semi structured-interviews data in section 5.3.2.1.1 clarified that top management commitment represented the starting point and the solid foundation required for successful TQM implementation. These findings are supported by a number of previous studies such as Kanji (2001); Zairi (1999); Flynn et al. (1994); Goetsch and Davis (2000). For instance, Kanji (2001) stated that top management commitment represented the most significant driver for achieving business excellence.

Moreover, the primary findings from the analysis of the questionnaire data, as illustrated in section 6.2.3.1, indicated that most of the respondents' answers were between 75% and 84.7%. This showed their agreement with each statement related to the top management commitment. Additionally, the mean value of these statements was between 3.9 and 4.1. Thus, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of respondents' agreement with these statements was high. These findings are similar to that found in the literature review such as a study conducted in Egyptian manufacturing companies by Salaheldin (2003) who confirmed that top management commitment was the essential key factor that stimulated TQM implementation, (using the five-point Likert scale).

Therefore, based on the above-mentioned discussion, it can be stated that top management commitment is the essential driving force required for TQM implementation in the company.

7.3.2. Continuous improvement

Companies are recommended to put more efforts into goals, for example, maintaining and improving quality, improving performance, lessening lead times and improving delivery reliability if they intend to use continuous improvement as a constant process to achieve a competitive position (Hyland et al., 2000). The key findings of the semi-structured interviews in section 5.3.2.2.2 revealed that the majority of the interviewees pointed out that continuous improvement was the lifeblood in every step of TQM implementation. It had an important role to play in terms of improving the entire company's performance in order to achieve better results in the future. This further reinforces the findings from the analysis of questionnaire survey as explained in section 6.2.3.2, which revealed that between 74.4% and 84% of the respondents confirmed their agreement with each statement related to the continuous improvement. Additionally, the mean value of these statements was between 3.8 and 4.0. Thus, in accordance with Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements was high.

The key findings from both the interviews and questionnaire survey data corroborated by the findings from the literature review (see section 2.6.8). For example, according to Chin and Pun (2002), the main goal of TQM implementation is achieving constant performance improvement and business superiority. Building on the previous discussion, it clearly appears that continuous improvement was considered as a significant factor that was required for TQM implementation in the company.

7.3.3. Process management

Process management includes systematic practices that concentrate on enhancing and improving the company's activities more than achieving results (Ibrahim et al, 2011). The primary findings from the semi-structured interview data in section 5.3.2.2.3 showed that process management had a crucial role particularly in terms of evaluating all the company's activities on a regular basis in order to identify the strength and weaknesses points, as well as identifying what needed to be done, what had worked well and what had been unsuccessful. Thus, it is an essential practice required for implementing TQM.

These views are substantiated with questionnaire survey findings in section 6.2.3.3 which revealed that a high percentage of the respondents (between 78.7% and 83%) showed their agreement with each statement related to the process management. Also, the mean value of these statements ranged between 3.8 and 4.0. Thus, based on the interpretation of Likert scale (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high.
The above mentioned key findings are upheld by the findings found in literature review (see section 2.6.6). According to Kanji (2012), in a TQM company, the focus is not on formal systems or structures. Rather, the focus is placed on setting up process management teams to solve the company problems. The essential point, in this case, is to alert employees to their responsibilities with the company and the processes in it. The success of a company is based on its focus on the processes, i.e. activities and tasks themselves rather than on abstract issues.
The outcome of the research findings and the literature review confirmed the significance of the process management as one of the key factors required for TQM implementation in the company.

7.3.4. Customer focus

It is widely acknowledged that customer focus is the essential factor of TQM and the company's highest priority this is attributed to the fact that quality is what the end user needs and desires (Burns & Bush, 2006; Richards, 2012; 2006; Youssef, 2006; Zhang, 2000). The review of the interviewees' responses related to the customer focus in sections 5.3.2.1.2 and 5.3.2.2.4 showed that customer focus was one of the primary points that the company should consider toward implementing all its activities. It is also a key indicator for measuring a company's success, failure and sustainability among its competitors.

This view is consistent with the primary data findings of the questionnaire survey in section 6.2.3.4, which illustrated that the majority of participants' answers ranged between 82% and 88% who displayed their agreement with each statement related to the customer focus. Moreover, the mean value of these statements was between 3.9 and 4.0. According to Likert scale interpretation (see Table 4.6 in chapter 4), the level of respondents' agreement with these statements is high.

These findings supported by the literature review in section 2.6.7 Ganihar (2006) stated that, in a TQM organisation, the customer represents as the topmost; this is not only a slogan displayed by the organisation, rather it is faith.

Therefore, based on the above-mentioned discussion it can be stated that customer focus is one of the essential driving force required for TQM implementation in the company.

7.3.5. Training and development

To guarantee complete awareness and understanding of quality management's concepts, all employees should be provided with the appropriate training and development since, without employee training, the organisation will experience hard times when solving production problems and also the employees' attitude and behaviour will not be focused towards the transformation to quality culture (Dale et al., 2013). The findings derived from the semi-structured interviews in section 5.3.2.2.5 emphasised that, since TQM is the responsibility of everyone in the company, all staff members should receive appropriate and specialised training and development courses to guarantee full understanding and awareness of TQM and to enhance their knowledge and experience in order to fulfil their tasks and activities in the most appropriate way. These findings are fully supported by several studies, which revealed the significant role of training and development as a key element for successful TQM implementation (Farooqui et al., 2008; Arivalagar & Naagarazan, 2009; Tsang & Antony, 2001).

With respect to the primary findings of the questionnaire survey data depicted in section 6.2.3.5, it was revealed that the mean value of these statements was between 2.7 and 3.1. Therefore, based on the Likert scale interpretation (see Table 4.6 in chapter 4) the level of participants' agreement for these statements is moderate. However, the findings showed that between 48.2% and 54% of the respondents indicated their disagreement with each statement. This means an average of 51% of the total respondents to the survey believed that the company had not implemented or considered the issues related to training and development. This might be attributed to various reasons such as insufficiency of company resources and the lack of a proper evaluation of these programmes. In parallel with literature review, Spenley (2012) stated that although the process of training, development and education in a TQM organisation was a necessity for the employees to understand what they had to do and why, it was important to enable employees to overcome the obstacles that hindered the achievement of the organisation objectives.

However, it is not insufficient that employees attend courses about problem solving; the courses must rather be tailored according to the resources and the context of the organisation in addition to its needs and expectations.

The outcome of the research findings and the literature review confirmed the significant role of training and development, for all staff, as it represents one of the key factors required for TQM implementation in the company.

7.3.6. Quality culture

From a quality culture point of view, quality is not a process that can be operated through evaluation and assessment only, but it is also a set of values and practices shared by the organisational environment and community and should be undertaken at all levels in the organisation (Vettori & Rammel, 2014). According to the primary findings of interviewees' opinions in section 5.3.2.2.6, TQM culture has to be created and disseminated by the company's management based on the philosophy that all the staff share the same values and direction towards achieving the company's objectives. These views are consistent with the findings derived from the analysis of the questionnaire survey data, as explained in section 6.2.3.6, which showed that between 76.4% and 78% of the respondents confirmed their agreement with each statement related to the quality culture. Moreover, the mean value of these statements was between 3.8 and 4.0. Hence, in accordance with Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement with these statements is high. Furthermore, the above-mentioned findings are reinforced by the literature review in section 2.6.2. For example, Gherbal et al. (2012) stated that within the TQM culture a supportive and collaborative culture had to be established in which all the staff, regardless of their positions, had to be made to feel that each of them was in charge and responsible for achieving the company's entire goals.

Building on the previous discussion it can be concluded that quality culture is considered as a significant factor required for TQM implementation in the company.

7.3.7. Policy and strategy

A successful policy and strategy is like the steering wheel that keeps companies on an appropriate and constant track towards its vision, mission and goals. (Nasseef, 2009). The review of the interviewees' answers related to the policy and strategy in section 5.3.2.2.7 showed that effective strategic vision that integrated quality in the company's strategy in addition to deploying the best policies, were essential to pave the way for successful TQM implementation. These findings corroborated by the findings in the literature review in section 2.6.3.

The primary findings from the analysis of the questionnaire survey data related to the policy and strategy in section 6.2.3.7 revealed that the mean value of these statements was between 2.7 and 2.8. Thus, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is moderate. In fact, the findings showed that between 53.3% and 65% of the respondents stated their disagreement with each statement. This means that an average of 59% of all respondents believed that the company had not implemented or considered the issues related to policy and strategy.

This might be attributed to the lack of appropriate understanding regarding the significant role of policy and strategy for achieving successful TQM implementation.

In line with literature review, the development of a quality policy must reflect the company's mission including corporate goals, values and expectations (Baidoun, 2003). Additionally, Dale et al. (2013) asserted that companies intending to implement successful TQM were required to have a well-defined strategic vision for the future and remain focused on it in order to attain their goals through the implementation of the company's mission.

7.3.8. Communication

Communication is paramount not only between the managers and the employees, but also among employees at all organisational levels in a TQM company. Kanji (2012) pointed out that without communication, companies would not function. The outcomes derived from the semi-structured interviews in section 5.3.2.2.8 revealed that applying effective, timely and accurate communication across all company levels would increase coordination and allow for the successful TQM implementation to be a more realistic goal. This is further supported by the findings from the analysis of questionnaire survey in section 6.2.3.9, which revealed that a high percentage of the respondents' agreement with each statement related to communication was between 81.6% and 89%. Moreover, the mean value of these statements ranged between 3.8 and 4.1. Thus, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements was high. These findings are upheld by the literature review in section 2.6.5. For instance, Sila and Ebrahimpour (2002) confirmed the importance of communication in implementing an effective and successful TQM. They indicated that the role and the value of communication across work units and functions lay in ensuring that customer requirements and needs were addressed, that an environment of trust and knowledge sharing was established and that there was a reliable communication of TQM inside and outside the company.

Thus, based on these findings, it can be firmly argued that communication represents one of the key factors required for TQM implementation in the company.

7.3.9. Employee Empowerment

It is widely acknowledged that human resources is an essential element of any company. Successful and effective implementation of TQM requires skilled and committed employees with full empowerment and capability to participate in the decision-making process (Gherbal et al., 2012; Zakuan et al., 2012). Although, the researcher did not include employee empowerment as a factor in the initial conceptual framework, the qualitative analysis of results showed that this factor is essential for TQM implementation, thus the interviewees' response in section 5.3.2.1.4 revealed that the main aspect of empowerment of the company's staff lay in delegated authority and responsibility from the top management levels to lower levels. Additionally, encouraging and motivating employees to participate in some parts of the decision-making process was considered to be an important aspect of successful TQM implementation.

According to Ismail (2012), employee empowerment stimulates employees to offer better job quality and contribute more to the new business processes and therefore, has been observed to be a crucial element in TQM. Furthermore, increase in production, customer satisfaction, and improved employee satisfaction have been identified to result from employee empowerment. Hele (2003) revealed that organisation should aim at communicating to its employees the significance and relevance of their activities within the organisation. Additionally, it should help them understand how exactly they add to the organisation's objectives. The involvement of employees at all levels enhances their skills to be utilised for the benefit of the organisation as they are its essence. An individual commitment to quality, as Evans and Lindsay (2001) point out, should mark the starting point of employee involvement. Employees will be more suitable to learn quality tools and methods and utilise them in their day-to-day work when they accept and commit to a quality philosophy. Wilkinson et al. (1998) stated that TQM was the driver of employee empowerment and enhanced the efforts of the company towards improving quality. In order to participate in continuous improvement, organisational members were provided with partial decision-making authority and responsibility where they could suggest new approaches to the development of the company's management including product quality, processes, and procedures.

However, the analysis of the questionnaire survey data, as illustrated in section 6.2.3.8, revealed that the mean value of the statements was only between 2.6 and 2.9. Hence, in accordance with Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements was only moderate. Furthermore, the findings showed that between 41.5% and 58.4% of the respondents stated their disagreement with each statement. This means that an average of 50% of the total respondents to the survey believed that the company had not implemented or considered the issues related to employee empowerment. This might be attributed to management style, policies and regulations related to empowering and involving the employee in the company. These findings are supported by Tsang and Antony (2001) who emphasised that management needed to recognise the employees' contribution, motivate and make them feel that they were an essential part of the TQM Company. Clearly, based on the questionnaire findings, this was lacking in the company under investigation.

Building on the previous discussion it can be concluded that there is a degree of agreement regarding the importance of employee empowerment in the company but little evidence that this is actually taking place.

7.4. The barriers that hinder TQM implementation

The third objective of this study was to investigate the barriers to implementing TQM in Iraqi oil companies. It has been found from the semi-structured interviews and questionnaire survey that there were seven barriers considered to be most significant in preventing TQM implementation. Therefore, in this section, the research findings associated with TQM barriers are discussed in depth, in the light of the literature review in order to reveal the impact of these barriers on TQM implementation. These TQM barriers were:

7.4.1. Resistance to Change

Resistance to change by employees is a common barrier that most companies face, while implementing any quality approach such as TQM. Employees may consider TQM as controlling, rather than empowering (Talib et al., 2011). The analysis of interview data presented in section 5.3.3.1, showed that the interviewees stated different reasons why employees resisted change, but they agreed on two main reasons. The first of these was the bad management of change in the workplace. This finding is proved by several studies (e.g. Bhat & Rajashekhar, 2009; Johnson, 2013; Khan, 2011; Mosadeghrad, 2014; Nwabueze, 2001; Rad, 2006) which confirmed that in companies, it was the managers and advisors who

bore the chief responsibility for implementing change. The second main reason on which the interviewees were agreed was the avoidance of undertaking more responsibilities as the TQM or another quality initiative requested. This finding is supported by Low and Ling Pan (2004) who illustrated that resistance to change happened to the employees in general when new tasks, missions and responsibilities were given to them as a consequence of applying a new quality approach.

Additionally, the analysis of the questionnaire survey data, presented in section 6.2.4.2, revealed that between 51.7 and 79.6% of the respondents confirmed their agreement with each statement related to resistance to change. Moreover, the mean value of these statements was between 3.2 and 4.0. Hence, in accordance with Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement with these statements is high.

Building on the previous discussion it can be concluded that resistance to change is considered as one of the principal barriers that hinder TQM implementation in the company.

7.4.2. Poor ineffective training and development

Lack of appropriate training and development programmes for employees is one of the critical barriers to the implementation of TQM in many companies (Temtime & Solomon, 2002). The primary data findings from the semi-structured interviews in section 5.3.3.2 showed that the lack of effective training and developing was considered to be an obstacle to the successful implementation of TQM as it related directly to improving and increasing skills and knowledge of the company's staff on TQM practices. Therefore, effective training and development programmes should include all the company's levels. This was further supported by the findings from the analysis of questionnaire survey data, as explained in section 6.2.4.7, which revealed that between 53.3% and 75.4% of the respondents confirmed their agreement with each statement related to the poor and ineffective training. Moreover, the mean value of these statements ranged between 3.3 and 3.8. Hence, in accordance with Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high. These findings are fully substantiated by a number of studies such as Johnson (2013), Talib et al. (2011), Claver et al. (2003), and Amar and Zain (2004). Talib et al. (2011) lay the blame on insufficient training on quality as well as training in problem identification and problem-solving techniques for failures in TQM implementation. Therefore, based on the above-mentioned discussion, it can be stated that poor ineffective training and development is one of the significant barriers that the company should confront in implementing TQM.

7.4.3. Lack of TQM experts

Human resource is a basic determinant to be considered in the evaluation of the barriers and the factors required for the implementation of the TQM. Lack of TQM experience of TQM represents an important barrier that impedes TQM implementation in companies (Francois et al., 2003; Gherbal, 2012). The results of the semi-structured interviews in section 5.3.3.3 revealed that lack of experts and the shortage of qualified employees in TQM was considered being an important impediment to successful TQM implementation. These views were supported by the questionnaire respondents in section 6.2.4.5, which illustrated that between 72% and 80.4% of the respondents stated their agreement with each statement related to the lack of TQM experts. Additionally, the mean value of these statements was between 3.9 and 4.1. Hence, based on the interpretation of Likert scale (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high. These findings, from both the interviewees' opinions and the questionnaire survey; corroborated by the literature review in sections 2.7.1 and 2.7.2. For example, according to Al-Zamany et al. (2002), poor personals skills and lack of managerial experience were deemed to be one of the major barriers to TQM implementation. Therefore, it can be concluded that lack of TQM experts is viewed as one of the main barriers that companies should confront during the TQM implementation process.

7.4.4. Bureaucratic management

Public and private companies in many developing countries can no longer hide behind bureaucratic rules and managerial inefficiency, while performing their operations and functions (Youssef, 2006). The primary findings from the analysis of the semi-structured interviews data in section 5.3.3.4 revealed that the bureaucratic culture and practices such as routine paperwork, complicated instructions and several procedures were most prevalent throughout the companies of the Iraqi oil sector. Thus, bureaucracy should be considered as a significant barrier impeding TQM implementation. This finding is supported by earlier findings presented in the literature review in sections 2.7.1 and 2.7.2.

Additionally, the analysis of questionnaire survey data in section 6.2.4.6 showed that between 55% and 71% of the respondents stated their agreement with each statement related to bureaucratic management. Also, the mean value of these statements was between 3.3 and 3.7. Thus, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high.

In agreement, Jamaluddin (2014) indicated that while bureaucracy was unavoidable within many companies in different industries, it was, nevertheless, a key barrier to the

implementation of TQM. The nature of bureaucracy was seen as creating pathologies within the system by altering the attitude and the behaviour of the employees in response to power and authority. Bureaucracy hindered the implementation of TQM by maintaining the status quo and the characteristic of the organisation from upper to low-level management. Additionally, Claver et al. (2000) asserted that bureaucratic culture caused several problems to companies such as poor employee involvement, rigid hierarchical levels, inadequate investment in technology, improper planning, and not being able to acclimatise to the market. Building on the previous discussion it can be concluded that bureaucratic management represents one of the barriers that hinder TQM implementation in the company.

7.4.5. Poor understanding and insufficient knowledge

Paucity of effective knowledge and understanding of TQM ensures that all employees in the company lack timely reliable, accurate, consistent and necessary data and information they need to do their job effectively and efficiently in the firm (Sadikoglu & Olcay, 2014). According to the findings from the analysis of the semi-structured interviews in section 5.3.3.5, lack of understanding, perception and inadequate knowledge regarding the practices and the benefits of TQM were considered as major obstacles impeding an effective TQM implementation. These findings are similar to findings derived from the questionnaire survey in section 6.2.4.1 which revealed that between 60% and 73% of the respondents stated their agreement with each statement related to poor understanding and insufficient knowledge. Additionally, the mean value of these statements was between 3.6 and 3.8. Hence, in accordance with the interpretation of Likert scale (see Table 4.6 in chapter 4), the level of participants' agreement with these statements is high. Furthermore, these findings are upheld by those in the literature review in sections 2.7.1 and 2.7.2.For example, Bhanugopan (2002) argued that poor of knowledge and understanding of TQM application had negative impacts on the employees in the company by hindering them from gaining timely reliable, accurate, consistent and necessary data and information required to do their job. Therefore, lack of knowledge and understanding is one of the most common barriers for all companies attempting to implement TQM.

7.4.6. Lack of teamwork

In modern companies, the role of the employee has changed from that of a worker to a problem solver. Moreover, the most effective way to harness the ideas and talents of the entire staff is the use of teamwork to overcome obstacles and solve problems (Kumar, 2011). The analysis of the interviewees' responses in section 5.3.3.6 explained that since the implementation of TQM in a company was not an individual's task, it was seen to be everyone's responsibility to share in the process equally. Therefore, lack of teamwork was perceived to be a barrier to the successful and effective application of TQM across the company. These findings were similar to the findings of a questionnaire survey in section 6.2.4.4, which showed that between 66% and 77% of the respondents stated their agreement with each statement related to the lack of teamwork. Additionally, the mean value of these statements was between 3.5 and 3.6. Thus, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement with these statements is high.

To support the above-mentioned findings from both the interviewees' opinions and the questionnaire survey. Various previous studies discussed in the literature review such as Mosadeghrad (2014), Nwabueze (2001); Boon Ooi et al. (2007); Rad (2006) have shown that lack of teamwork represented a significant barrier to TQM implementation. In fact, Bayazit (2003) declared emphatically that the difficulties in achieving teamwork among the employees represented one of the most frequent barriers faced by companies when implementing TQM.

Therefore, based on the aforementioned discussion it can be stated that lack of teamwork is one of the significant barriers that the company should address in implementing TQM.

7.4.7. Lack of delegation of authority and responsibility

Managers, especially those at the top level, must be bold enough to delegate as much authority and responsibility as possible. That is the best way to establish confidence and respect from their staff (Ishikawa 1985). The primary data findings of semi-structured interviews in section 5.3.3.7 reveal that despite the importance of delegation, most of the managers, especially those in high positions, were unfortunately, unlikely to find it easy to delegate their authorities and responsibilities to other managers or supervisors in the company. Therefore, rejection or reluctance to delegate certain authority and responsibility to their subordinates is considered as one of barriers to TQM implementation.

This is consistent with the findings derived from the analysis of questionnaire survey as revealed in section 6.2.4.3, which revealed that between 65.3% and 71% of the respondents confirmed their agreement with each statement related to the lack of delegated authority and responsibility. Moreover, the mean value of these statements was between 3.6 and 3.8. Therefore, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high.

In parallel with the above-mentioned findings, the literature review showed that employees had to take more responsibility with their involvement in a team, so that they could employ more authority over their work environment. Lack of employee involvement and delegation were considered as important impediments to initiating the effective implementation of any quality initiatives (Awan & Bhatti, 2003). Similarly, Catalin et al. (2014) asserted that the poor delegation of duties and authority to other employees, at all hierarchical levels, was considered as one of the significant barriers of TQM implementation.

Building on the previous discussion it can be concluded that lack of delegated authority and responsibility represents one of the barriers that hinder TQM implementation in the company.

7.5. The Benefits of TQM Implementation

This section focuses on the fourth objective of this study, which is to investigate the benefits of implementing TQM in Iraqi oil companies. It has been found from the semi-structured interviews and questionnaire survey that there were five benefits considered to be the most significant benefits of TQM implementation. Therefore, in this section, the research findings associated with TQM benefits are discussed in depth, in the light of the literature review, in order to reveal the benefits of TQM implementation. These TQM benefits are:

7.5.1. Improving customer satisfaction

In many studies, customer satisfaction and a customer-oriented approach were seen as a company's highest priority. The success of the company in the longer term was seen as dependent on how effectively it focused on its customers on a constant and regular basis. Customers form the most important focal point for any company and play a crucial role in successful TQM (Brah et al., 2002).

The primary data findings of semi-structured interviews in section 5.3.4.1 showed that TQM implementation enhanced the goal of meeting customer satisfaction, which can be seen as a

significant measure of a company's performance and an indicator of success or failure of a company in its business. This view was corroborated by the findings of questionnaire data analysis. Section 6.2.5.1 revealed that between 77.8% and 88% of the respondents stated their agreement with each statement related to improving customer satisfaction. Moreover, the mean value of these statements was between 3.9 and 4.1. Hence, based on the interpretation of Likert scale (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high. Furthermore, these findings are upheld by the findings of the literature review in sections 2.8 and 2.8.1. Oakland (2003), stated that TQM was designed to enable all parties to be involved in detecting and addressing quality issues for the ultimate benefit of the customer. This is borne out in the findings of the current study. Additionally, Kartha (2004) concluded that improving customer satisfaction was one of the main aims of TQM implementation, this claim is concordant with the findings of the respondents in the current study.

7.5.2. Improving employee satisfaction

Human resources are the most important asset for any company as they provide support in productivity and performance enhancement. In order to become more successful and competitive, companies must consider their employees as the main engine towards achieving their goals in both the short and long-term (Mehmood et al., 2014). Based on the findings of the analysis of the data, interviewees (in section 5.3.4.2) strongly believed that the influence of TQM would produce a positive impact on employees, such as improving the level of satisfaction, establishing teamwork and reducing the cost and time related to the work activities, as well as improving the work environment through enhancing the relationships between employees and their managers and supervisors. The questionnaire respondents' views illustrated in section 6.2.5.2 supported these views. It showed that between 62.6% and 84.7% of the respondents stated their agreement with each statement related to improving employee performance. Moreover, the mean value of these statements was between 3.4 and 4.0. Therefore, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high. Additionally, these findings are supported by the findings of earlier research in the literature review: according to Antony et al. (2002), effective TQM implementation led to improving staff involvement because TQM ensured that all the employees within the company had a clear awareness and knowledge of what was required and how their activities related to the company's business. Under TQM, employees are motivated and encouraged to organise, manage, control and improve the

processes within their authority and responsibility. Further, Alsughayir (2014) pointed out there was a strong connection between a TQM company and employee performance as the success of TQM implementation depended mostly on employees' attitudes and activities in the company.

7.5.3. Eliminating waste and defects

In most companies, various errors and defects are likely to arise due to personnel, technology methods, material and environment (Oakland, 2014). The findings of the primary data analysis from the semi-structured interviews in section 5.3.4.3 showed that the implementation of TQM by the company was perceived as leading to better practices towards reducing and eliminating the wastage and defects resulting from their activities, particularly in the work field where the major activities such as drilling, reclamation and developing oil wells took place. These findings are corroborated by those of earlier studies discussed in the literature review in sections 2.8 and 2.8.3.

Furthermore, the interviewees' opinions were consistent with the primary data findings from the questionnaire respondents. Hence, section 6.2.5.3 revealed that between 70.3% and 72% of the respondents stated their agreement with each statement related to eliminating waste and defects. Additionally, the mean value of these statements was between 3.7 and 3.9. According to the interpretation of Likert scale (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high. The primary data finding of interviewees and questionnaire responders were in agreement with Burrill and Ledolter (1998) who clarified that the continuous improvement associated with TQM involved ways of reducing waste as a means to add value. TQM gives focus to identifying waste that is not adding value to various stakeholder and taking appropriate measures and action to rectify the source of the wastage. In the same context, Antony et al. (2002) pointed out that through an effective TQM implementation, the work processes and potential improvements were the focus of efforts. Employees concentrated more on the elimination of causes of errors, defects and problems than on correction procedures. Therefore, based on the above-mentioned discussion it can be concluded that eliminating waste and defects is one of the significant benefits that the company will acquire by implementing TQM.

7.5.4. Improving financial performance

The company's financial performance is crucial to its success and resonates directly with its long-term objectives, which are mostly financial (Kaplan & Norton, 2001). The analysis of

the interviewees' opinions related to improving financial performance in section 5.3.4.4 revealed that the implementation of TQM was considered as positively affecting the financial performance through decreasing cost, increasing revenue and market share, which directly translated into profit. Therefore, financial performance might be considered as a major incentive for commitment and motivation among employees and management towards implementing TQM successfully. These views are fully supported by a number of studies such as Kaynak (2013), Lee (2004), Chin and Pun (2002) and Panjaitan (2014). In parallel with interviewees' key findings, questionnaire respondents have also reflected these findings. Thus, based on the questionnaire findings, section 6.2.5.4 revealed that between 60.2% and 72% of the respondents stated their agreement with each statement related to improving financial performance. In addition, the mean value of these statements was between 3.4 and 3.7. In accordance with the interpretation of Likert scale (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high. Furthermore, to support the above-mentioned findings Moballeghi and Moghaddam (2011) stressed that there was evidence indicating that implementing TQM in companies was associated with an improved financial performance, which contributed to enhancing the value of the company. Therefore, based on the aforementioned discussion, it can be stated that financial performance is one of the significant benefits that the company will acquire by implementing TQM.

7.5.5. Decreasing the company's impact on the environment

It is widely acknowledged that protecting the environment has become a global problem, which is positively correlated with economic and industrial progress. However, it is inevitable for some companies to have processes that result in environmental degradation. For instance, oil exploration, fracking and mining companies are good examples that yield important products, but with significant environmental consequences (Gunaydin & Oraz, 2015). According to the interviews' key findings in section, 5.3.4.5, TQM implementation was seen as contributing positively in terms of reducing or mitigating the negative effects of the company's operations towards the surrounding environment. Furthermore, it was seen as increasing awareness of the negative consequences of the company's activities and the necessity to maintain an ecological balance. These findings are supported by those discussed in the literature review in sections 2.8 and 2.8.5. The questionnaire respondents' views, illustrated in section 6.2.5.5, also fully supported the interviewee's findings. It showed that between 76% and 83% of the respondents stated their agreement with each statement related to decreasing company's impact on the environment. Moreover, the mean value of these

statements was between 3.8 and 4.1. Hence, based on the Likert scale interpretation (see Table 4.6 in chapter 4), the level of participants' agreement for these statements is high.

In parallel with the above-mentioned findings, the literature review showed that TQM has been widely used in contemporary companies toward improving the quality and value of processes, products, and services. This has been extended to cover environmental and societal benefits that emanate from having a management scope that was environmentally oriented in diverse ways. The scope of TQM has been deemed to have a positive effect on the environment in multiple ways (Pereira-Moliner et al., 2012). According to Osuagwu (2002), environmental factors have an essential significant influence on strategies of TQM. Thus, when companies are seeking to achieve optimal value for their products, the environmental aspects are among the main considerations.

7.6. The relationship between the barriers that hinder TQM and the key factors required for TQM implementation.

Companies which aim at implementing TQM ought to have a profound understanding of the barriers, factors required for successful implementation and the relationship between them before initiating the process of application and implementation of TQM. One of the most palpable ways in which some of TQM barriers and the key factors for implementation of TQM are related is that a majority of them involve human resources or factors (Catalin et al., 2014). For instance, factors such as management commitment and leadership, teamwork, lack of delegation authority and responsibility, lack of teamwork, inadequate TQM experts, and many others involve human factors, which act as the driving forces and decide on the direction which these particular factors should take – whether positive or negative (Case & Srikantia, 1998; Kasongo & Moono, 2010). In simpler terms, it is the human forces that act as the main drivers in these particular factors.

Additionally, both the barriers that are responsible for hindering the implementation of TQM implementation as well as the most vital factors that are necessary for the implementation of TQM relate in a manner in which nearly all – if not all - centrally touch on the employees. From a simple preview of all of the barriers as well as the supportive factors, it is quite explicit that they hold significance with regards to the conduct of workers. For instance, factors such as employee empowerment, training and development, bureaucratic management, lack of effective training among many others hold significance with regards to the manner in

which employees perceive their various duties or roles. Barriers would often result in non-receptive employees, while the positive factors result in receptive feedback. (Senda, 2014).

Therefore, understanding the relationship between the barriers that hinder TQM and the key factors required for TQM implementation will support the oil company to invest in the most effective TQM key factors required to overcome or to reduce the high level of the negative impacts of the barriers that hinder the successful TQM implementation. The primary findings of the inferential statistics in section 6.3.1 reveal that the sub-ordinates of the nine TQM key factors were presented alongside their inverse correlations with the sub-ordinate of the seven TQM barriers. It has been found that each sub-ordinate barrier required the oil company to improve and enhance certain sub-ordinate key factors in order to improve its opportunities regarding overcoming or reducing the negative impact of these barriers that impeded successful TQM implementation. Some of these sub-ordinate key factors have a different level of negative correlation with particular sub-ordinate barriers that can greatly affect the company's ability to overcome or reduce the negative impact of the barriers in certain areas. This is attributed to the inverse correlation between each sub-ordinate key factor of TQM and specific TQM sub-ordinate barriers. Moreover, if the oil company has a limited budget, time and qualified human resource for overcoming all these barriers it can use strength of the correlation ranking to decide which sub-ordinate barrier need to be overcome first. These sub-ordinate key factors can be considered a baseline for any plan aiming to overcome the correlated TQM sub-ordinate barriers. This means that improving and enhancing TQM sub-ordinate key factors required to overcome the sub-ordinate barriers can be considered as the essential step in successful TQM implementation process.

Meanwhile, the extent to which overcoming the barriers is achieved will be determined by the effective key factors. For instance, if a certain sub-ordinate key factor shows a certain significant correlation with particular sub-ordinate barriers, this means that these sub-ordinate key factors need to be developed and enhanced in order to overcome or reduce the negative impact of those sub-ordinate barriers. In addition, the TQM sub- ordinate barriers also show correlation with other sub-ordinate key factors, which require the oil company to improve and enhance them to overcome these barriers to successful TQM implementation. Showing that certain TQM sub-ordinate barriers only have a negative correlation with some sub-ordinate key factors does not necessarily mean the other sub-ordinate key factors are not important. Although, all sub-ordinate key factors are important in terms of TQM implementations, the

case study can use the correlation results to set up its priorities related to overcoming the TQM sub-ordinate barriers.

Based on the above-mentioned discussion, it can be concluded that the high majority of TQM sub-ordinate barriers show different levels of correlation with TQM sub-ordinate key factors. This illustrates that each sub-ordinate key factor of TQM has a significant level of applicability to overcoming or reducing the negative impacts of certain sub-ordinate barriers that hinder TQM implementation in the case study.

7.7. The relationship between key factors of TQM and the benefit of TQM implementation.

There is substantial agreement between most authors regarding the positive impacts of TQM key factors on the success of the organisation and the benefits, which can be accrued through TQM implementation. This assertion is evidence-based as, for example, in the empirical study conducted by Bou-Llusar et al. (2009), where a strong positive association was found between TQM practices and performance in the context of Spanish manufacturing and services. Furthermore, Douglas and Judge (2001) attested to the strong relationship, which existed between adoption of TQM and achieving competitive advantages. Based on a study of organisations which had been the recipients of various quality awards, Hendricks and Singhal (2001) were also able to confirm the strong association between implementing TQM and successful performance. The findings of these studies are further strengthened by the longitudinal study conducted by Easton and Jarrel (1998) where a sustainable long-term effect on performance was evidenced. Nevertheless, contrary findings such as those of Corredor and Goni (2010) have called into question the view that high performance and success were inevitable consequences of TQM implementation. The authors claim that such success accounts were mostly representative of early adopters of TQM. Organisations which implemented TQM later did not witness such success as has been claimed of the early implementers of this approach. They did admit that TQM might have a role in sustaining improvement already achieved, but not necessarily to improving performance. Similar positions regarding the effectiveness of TQM were taken by Sousa and Voss (2002) and Su et al. (2008) claiming that no significant direct effect of TQM adoption and organisational success had been established. The thrust of such research leads to the position that the relationship between TQM implementation and organisational success is inconclusive.

Nevertheless, with respect to the primary findings of this study, the analysis of inferential statistics in section 6.3.2 reveals that the sub-ordinate benefits of the five TQM implementation were presented alongside their positive correlation with the sub-ordinate of the nine TQM key factors. It has been found that each sub-ordinate TQM benefit requires the oil company to improve and enhance certain sub-ordinate key factors of TQM in order to improve its chance of achieving the desire results. Some of these sub-ordinate key factors have a different level of positive correlation with particular sub-ordinate benefits that can greatly affect the company's ability to achieve the best results in certain areas. Moreover, if the oil company have a limited budget, time and qualified human resource for achieving all the benefits it can use strength of the correlation ranking to decide which sub-ordinate key factor needs to improve and enhance first to achieve certain benefits. These sub-ordinate key factors can be considered a baseline for any plan aiming to achieve TQM sub-ordinate benefits. This means that oil company should concentrate, enhance and improve the sub-ordinate key factors of TQM as the crucial step towards successful TQM implementation.

Meanwhile, the degree of achieving the best results will be determined by the desired benefits. For instance, if certain sub-ordinate benefits shows a certain significant correlation with particular TQM sub-ordinate key factors, this means that these sub-ordinate key factors need to be developed and enhanced in order to optimise the corresponding sub-ordinate benefits. In addition, the TQM sub-ordinate benefits show a correlation with other sub-ordinate key factors, which require the oil company to improve and enhance them to achieve the best results of TQM implementation. Showing that certain TQM sub-ordinate benefits only have a positive correlation with some TQM sub-ordinate key factors does not necessarily mean the other sub-ordinate key factors are not important. Although, all sub-ordinate key factors are important in terms of TQM implementation, the case study can use the correlation results to set up its priorities related to achieving the TQM benefits.

7.8. The revised version of the conceptual framework based on the empirical findings

The conceptual framework was initially established based on the literature review and the initial understanding of the knowledge domains (see Figure 2.6 in Chapter 2). The framework was further revisited and refined with the new knowledge gained through the empirical findings based on the results obtained from analysis of the semi-structured interviews (see Figure 5.8 in Chapter 5). Accordingly, the revised version of the conceptual framework can be

divided into two main stages that can be illustrated by two figures namely Figure 7.1 and Figure 7.2.

Figure 7.1 explains the inverse relationship between the barriers that hinder TQM and the key factors required for TQM implementation through their sub-ordinate factors. While Figure 7.2 explains the positive relationship between the key factors required for TQM implementation and the benefits of TQM. It can be seen that the strength of the relationships between all the elements in the first and second figure have been classified mainly into two categories based on the degree of the strength correlation (see Section 4.11.2). Thus, the first is called 'medium relationship' and is represented by thick arrows; this results from the correlation analysis results. The second category is the 'low relationship' that is represented by thin arrows; this is also based on the results of the correlation analysis (see Sections 6.3.1 and 6.3.2).

The following sub-sections will independently explain the relationships and findings based on the sub-ordinate of TQM key factors, benefits and barriers as illustrated in the framework in figure 7.1 and 7.2 respectively.

7.8.1. Explanation of the TQM framework based on the relationship between the sub-ordinate barriers and sub-ordinate key factors of TQM

As detailed in Figure 7.1, it can be seen that **Top Management Commitment (TMC)** shows medium relationships in relation to two of its sub-ordinate key factor with sub-ordinate barriers as follows:

a) TMC sub-ordinate factor K1.1 (*Top management continually demonstrates its commitment to* quality) has a medium relationship with one sub-ordinate barrier B2.2 (It *is difficult to change the existing attitude of middle and junior management*).
b) TMC sub-ordinate key factor K1.3 (*Top management uses performance indicators to ensure adequate performance)* has medium relationship with sub-ordinate barriers B3.1 (*Lack of delegated authority from the top management to other managerial levels*) and B7.2 (*Lack of using modern training methods at the company).*

In addition, TMC displays low relationships in all three sub-ordinate key factors with sub-ordinate barriers as follows:

a) TMC sub-ordinate factor K1.1 (*Top management continually demonstrates its commitment to* quality) has low relationship with one sub-ordinate barrier B6.2 (*The management style does not encourage and motive the staff to be innovative and efficient).*

b) TMC sub-ordinate factor K1.2 (*Top management is inclined to allocate adequate time and resources for quality management)* has low relationship with two sub-ordinate barriers B1.2 (*There is unclear awareness of TQM in the company*) and B4.1 (*Weaknesses of cross-functional cooperation and coordination between departments*).

c) TMC sub-ordinate factor K1.3 (*Top management uses performance indicators to ensure adequate performance)* has low relationship with one sub-ordinate barrier B2.2 (*It is difficult to change the existing attitude of middle and junior management).*

The figure indicates that **Continuous Improvement (CI)** expresses medium relationships in respect to two of its sub-ordinate key factors with sub-ordinate barriers as follows:

a) CI sub-ordinate factor K2.1 (*All company employees believe that quality improvement is their individual responsibility)* has a medium relationship with one sub-ordinate barrier B7.3 (*Lack of using modern training methods at the company)*

b) CI sub-ordinate factor K2.2 (*The company emphasises improvement rather than maintenance)* has a relationship with sub-ordinate barrier B3.1 *(Lack of delegated authority from the top management to other managerial levels)* and sub-ordinate barrier B5.2 *(Shortage of knowledge and skills to implement TQM).*

Moreover, CI expresses low relationships between its three sub-ordinate key factors with sub-ordinate barriers as follows:

a) CI sub-ordinate factor K2.1 (*All Company employees believe that quality improvement is their individual responsibility)* has low relationship with three sub-ordinate barriers B1.1 *(Poor of understanding of the purposes and the benefits of TQM),* B3.3 *(Managers at middle and junior levels follow instructions more than creating proposals in their jobs)* and B6.2 *(The management style does not encourage and motive the staff to be innovative and efficient).*

b) CI sub-ordinate factor K2.2 *(The Company emphasises improvement rather than maintenance)* shows one low relationship with sub-ordinate barrier B7.1 *(The concept of quality management is reflected in the company's values, vision and mission).*

c) Similarly, CI sub-ordinate factor K2.3 *(The policy and strategy related to quality management is managed and reviewed on a regular basis)* has one low relationship with sub-ordinate barrier B5.3 *(There are wrong people in the wrong position).*

Process Management (PM) shows that medium relationships exist between two of its sub-ordinate factors and sub-ordinate barriers as follows:

a) PM sub-ordinate factor K3.1 *(The company has appropriate management measures to control and improve the production or delivery process)* has two relationships with sub-ordinate B2.2 *(It is difficult to change the existing attitude of middle and junior management)* and sub-ordinate barrier B6.2 *(The management style does not encourage and motive the staff to be innovative and efficient).*
b) PM sub-ordinate factor K3.3 *(The company uses and follows clear working procedures and instructions)* has one relationship with sub-ordinate barrier B2.2 *(It is difficult to change the existing attitude of middle and junior management).*

Additionally, PM demonstrates low relationships in its all three sub-ordinate key factors with sub-ordinate barriers as follows:

a) PM sub-ordinate factor K3.1 *(The company has appropriate management measures to control and improve the production or delivery process)* has two relationships with sub-ordinate barrier B3.1 *(Lack of delegated authority from the top management to other managerial levels)* and sub-ordinate barrier B5.2 *(Shortage of knowledge and skills to implement TQM).*
b) PM sub-ordinate factor K3.2 *(The management provides relevant measurements to cover the key processes in the company)* has relationship with sub-ordinate barrier B3.3 *(Managers at middle and junior levels follow instructions more than creating proposals in their jobs)* and sub-ordinate barrier B6.2 *(The management style does not encourage and motive the staff to be innovative and efficient).*
c) PM sub-factor K3.3 *(The company uses and follows clear working procedures and instructions)* has also two relationship with sub-ordinate barrier B4.1 (*Weaknesses of cross-functional cooperation and coordination between departments)* and sub-ordinate barrier B6.3 *(The Company focuses on the results more than the processes).*

Customer Focus (CF) demonstrates medium relationships in terms of two of its sub-ordinate factors with sub-ordinate barriers as follows:

a) CF sub-factor K4.1 *(The Company determines current and future customer requirements and expectations)* has one relationship with sub-ordinate barrier B6.2 *(The management style does not encourage and motive the staff to be innovative and efficient).*
b) CF sub-factor K4.3 *(The Company is fully aware of market trends)* has also one relationship with sub-ordinate barrier B7.3 *(Lack of using modern training methods at the company).*

At the same time CF displays low relationships in relation to its three sub-ordinate key factors with sub-ordinate barriers as follows:

a) CF sub-factor K4.1 (*The Company determines current and future customer requirements and expectations)* has only one relationship with sub-ordinate barrier B4.1 (*Weaknesses of cross-functional cooperation and coordination between departments).*
b) CF sub-factor K4.2 (*The company understands the needs of both its customers and markets well)* has two relationships with sub-ordinate barrier B5.2 *(Resources are available to cover employees training needs and development)* and sub-ordinate barrier B7.3 *(Lack of using modern training methods at the company).*
c) CF sub-factor K4.3 *(The Company is fully aware of market trends)* has one relationship with sub-ordinate barrier B5.3 *(There are wrong people in the wrong position).*

Training and development (T&D) signifies that medium relationships exist between its three sub-ordinate key factors and sub-ordinate barriers as follows:

a) T&D sub-factor K5.1 *(Quality-related training given to managers, supervisors and employees)* has one relationship with sub-ordinate barrier B1.2 *(There is unclear awareness of TQM in the company).*
b) T&D sub-factor K5.2 *(Resources are available to cover employees training needs and development)* has two relationships with sub-ordinate barrier B5.1 *(Lack of experts and specialists in TQM)* and sub-ordinate barrier B7.3 *(Lack of using modern training methods at the company).*

c) T&D sub-ordinate factor K5.3 (*The Company evaluates training outputs based on a regular basis)* has one relationship with sub-ordinate barrier B7.3 *(Lack of using modern training methods at the company).*

Moreover, T&D shows low relationship between one of its sub-ordinate factors K5.1 *(Quality-related training given to managers, supervisors and employees)* and two sub-ordinate barriers B4.1 (*Weaknesses of cross-functional cooperation and coordination between departments)* and B5.1 *(Lack of experts and specialists in TQM).*

The figure also demonstrates that **Quality Culture (QC)** has medium relationships in respect to two of its sub-ordinate factors with sub-ordinates barriers as follows:

a) QC sub-factor K6.1 (*Changing traditional culture is one of the most important steps towards successful implementation of TQM in the company)* has one relationship with sub-ordinate barrier B4.3 *(Lack of effective teams or team building skills).*
b) Likewise, QC sub-factor K6.3 *(There is an ongoing creation of quality culture among employees)* has also one relationship with sub-ordinate barrier B4.3 *(Lack of effective teams or team building skills).*

Additionally, QC displays low relationships in its all three sub-ordinate key factors with sub-ordinate barriers as follows:

a) QC sub-factor K6.1 *(Changing traditional culture is one of the most important steps towards successful implementation of TQM in the company)* has one relationship with sub-ordinate barrier B6.2 *(The management style does not encourage and motive the staff to be innovative and efficient).*
b) QC sub-factor K6.2 *(Adopting TQM culture will assist the company to fit with the changes in the business environment)* has two relationships with sub-ordinate barrier B2.2 *(It is difficult to change the existing attitude of middle and junior management)* and sub-ordinate barrier B7.3 *(Lack of using modern training methods at the company).*
c) QC sub-factor K6.3 *(There is an ongoing creation of quality culture among employees)* has two relationships with sub-ordinate barrier B5.3 *(There are wrong people in the wrong position)* and sub-ordinate barrier B7.3 *(Lack of using modern training methods at the company).*

Policy and Strategy (P&S) displays one medium relationship in relation to its sub-ordinate key factor K7.1 (*The concept of quality management is reflected in the company's values, vision and mission)* with sub-ordinate barrier B2.1 *(Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs).*

Moreover, P&S expresses low relationships between its three sub-ordinate key factors with sub-ordinate barriers as follows:

a) P&S sub-factor K7.1 (*The concept of quality management is reflected in the company's values, vision and mission)* has only one relationship with sub-ordinate barrier B1.2 *(There is unclear awareness of TQM in the company).*
b) P&S sub-factor K7.2 *(The company's staff particularly middle and junior managers have clear knowledge about policy and strategy related to quality management).* Has two relationships with sub-ordinate barrier B3.3 *(Managers at middle and junior levels follow instructions more than creating proposals in their jobs)* and sub-ordinate barrier B6.2 *(The management style does not encourage and motive the staff to be innovative and efficient).*
c) P&S sub-factor K7.3 (*The policy and strategy related to quality management is managed and reviewed on a regular basis)* has also two relationships with sub-ordinate barrier B1.2 *(There is unclear awareness of TQM in the company)* and sub-ordinate barrier B6.3 *(The Company focuses on the results more than the processes).*

Employee Empowerment (EE) shows that medium relationships exist between all of its sub-ordinate factors and sub-ordinate barriers as follows:

a) EE sub-factor K8.1 (*Employees have authority in their positions to make necessary actions when required)* has only one relationship with sub-ordinate barrier B2.1 (*There is unclear awareness of TQM in the company).*
b) EE sub-factor K8.2 (*The management motivates employees to suggest and create ideas for work improvement)* has two relationships with sub-ordinate barrier B2.1 (*There is unclear awareness of TQM in the company)* and sub-ordinate barrier B3.2 *(Most of the staff are resistant to being involved in training and development programmes).*
c) EE sub-factor K8.3 *(Top management involves middle and junior managers in decision making)* has also two relationships with sub-ordinate barrier B3.3 *(Managers at middle and junior levels follow instructions more than creating proposals in their jobs)* and sub-ordinate barrier B6.2 respectively.

Moreover, EE shows low relationships in terms of two of its sub-ordinate factors with sub-ordinate barriers as follows:

a) EE sub-factor K8.1 (*Employees have authority in their positions to make necessary actions when required)* has one relationship with sub-ordinate barrier B6.3 *(The company focuses on the results more than the processes).*
b) EE sub-factor K8.2 (*The management motivates employees to suggest and create ideas for work improvement)* has two relationships with sub-ordinate barrier B7.3 *(Lack of using modern training methods at the company)* and sub-ordinate barrier B4.2 *(Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team).*

Finally, **Communication (COM)** signifies that medium relationships exist between its three sub-ordinate key factors and sub-ordinate barriers as follows:

a) COM sub-factor K9.1 *(There is an effective coordination in terms of exchanging and submitting the information between different managerial levels in the company)* has two relationships with sub-ordinate barrier B4.2 *(Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team)* and sub-ordinate barrier B3.1 *(Lack of delegated authority from the top management to other managerial levels).*
b) COM sub-factor K9.2 (*The company gets the required information from the varied internal and external sources in due time)* has one relationship with sub-ordinate barrier B3.2 *(Work responsibilities are not delegated at the company).*
c) COM sub-factor K9.3 *(The Company uses the effective means of communication in its activities)* has also one relationship with sub-ordinate barrier B2.2 *(It is difficult to change the existing attitude of middle and junior management).*

Furthermore, Com demonstrates low relationships in terms of two of its sub-ordinate factors with sub-ordinate barriers as follows:

a) COM sub-factor K9.1 *(There is an effective coordination in terms of exchanging and submitting the information between different managerial levels in the company)* has two relationships with sub-ordinate barrier B2.3 *(Most of the staff are resistant to being*

involved in training and development programmes) and sub-ordinate barrier B6.3 *(The company focuses on the results more than the processes)* respectively.

b) COM sub-factor K9.3 *(The Company uses the effective means of communication in its activities)* has one relationship with sub-ordinate barrier B6.3 *(The Company focuses on the results more than the processes).*

Overall, the relationships between the sub-ordinate key factors of TQM implementation and the sub-ordinate barriers that hinder TQM implementation in this part of the framework are based on the idea that successful TQM implementation required overcoming or reducing the negative impact of the barriers that hindered TQM implementation via improving and enhancing TQM key factors.

7.8.2. Explanation of the TQM framework based on the relationship between the sub-ordinate benefits and sub-ordinate key factors of TQM

Top Management Commitment (TMC) shows that medium relationships exist between one of its sub-ordinate factor K1.1 (*Top management continually demonstrates its commitment to quality*) and four sub-ordinate benefits. Firstly it has relationship with subordinate benefit F1.3 (*Meeting customers' needs and requirements*). Secondly it exhibits a similar relationship with sub-ordinate benefit F2.1 (*Increase employees' motivation to update their skills and knowledge*).Thirdly, it shows a relationship with sub-ordinate benefit F2.3 (*Improve working environment.*). And fourthly, it displays a like relationship with sub-ordinate benefit F5.3 (*Enhance the contribution of the company in social and environmental activities as a part of its social and environmental responsibility*).

Additionally, TMC demonstrates low relationships in two of its sub-ordinate key factors with sub-ordinate benefits as follows

a) TMC sub-ordinate factor K1.2 (*Top management is inclined to allocate adequate time and resources for quality management*) has relationship with sub-ordinate F1.2 *(Reduce customers' complaints)*.
b) TMC sub-ordinate factor K1.3 *(Top management uses performance indicators to ensure adequate performance)* has a relationship with sub-ordinate F3.1 *(Enhancing the necessary measurements for reducing waste and interruptions related to daily work activities).*

Continuous Improvement (CI) shows that medium relationships exist between three of its sub-ordinate factors and sub-ordinate benefits as follows:

a) CI sub-ordinate key factor K2.1 (*All company employees believe that quality improvement is their individual responsibility*) exhibits a medium relationship exist with sub-ordinate benefit F2.3 (*Improve working environment*) and with sub-ordinate benefit F5.2 (*Minimising the negative effects of the company's activities on the surrounding environment to the lowest level*).

b) CI sub-ordinate key factor K2.2 *(The Company emphasises improvement rather than maintenance)* exhibits a medium relationship with sub-ordinate benefit F1.3 *(Meeting customers' needs and requirements)* and sub-ordinate benefit F3.3 *(Improving effective utilisation of company's resources).*

c) CI sub-ordinate key factor K2.3 (*The Company emphasises the best implementation of continuous improvement processes for all tasks at all levels*) exhibits a medium relationship with only sub-ordinate benefit F1.1 *(Enhance the relationship between the company and its customers)*.

Additionally, CI demonstrates low relationships in all three sub-ordinate key factors with some sub-ordinate benefits as follows:

a) CI sub-ordinate key factor K2.1 *(All company employees believe that quality improvement is their individual responsibility*) exhibits a low relationship with sub-ordinate benefit F5.1 *(Contribute to establishing good relations within the community where the company carry out its activities).*
b) CI sub-ordinate key factor K2.2 *(The Company emphasises improvement rather than maintenance)* exhibits a low relationship with three sub-ordinate benefits of TQM implementation .firstly, with sub-ordinate benefit F1.2 *(Reduce customers' complaints).* Secondly, with sub-ordinate benefit F4.1 *(Enhancement of the company's profitability) and thirdly with sub-ordinate benefit F4.3 (Increase Company's market share).*
c) CI sub-ordinate key factor K2.3 *(The Company emphasises the best implementation of continuous improvement processes for all tasks at all levels)* exhibits a low relationship with only sub-ordinate benefit F2.2 *(The average number of employees' complaints is decreasing).*

Process Management (PM) shows that medium relationships exist between two of its sub-ordinate factors and some sub-ordinate benefits as follows:

a) PM sub-ordinate factor K3.1 *(The company has appropriate management measures to control and improve the production or delivery process)* has medium relationship with sub-ordinate benefit F4.1 *(Enhancement of the company's profitability).*
b) PM sub-ordinate factor K3.2 *(The management provides relevant measurements to cover the key processes in the company)* has medium relationship with sub-ordinate benefit F5.2 *(Minimising the negative effects of the company's activities on the surrounding environment to the lowest level).*

Furthermore, PM demonstrates low relationships in two sub-ordinate key factors with some sub-ordinate benefits as follows:

a) PM sub-ordinate factor K3.2 (*The management provides relevant measurements to cover the key processes in the company*) has low relationship with sub-ordinate benefit F3.2 *(Decreasing the average number of defects and errors in work activities).*
b) PM sub-ordinate factor K3.3 *(The company uses and follows clear working procedures and instructions)* has relationship with three sub-ordinate benefits. It has a relationship with F1.1 *(Enhance the relationship between the company and its customers),* F1.2 *(Reduce customers' complaints)* and F1.3 *(Meeting customers' needs and requirements).*

Customer focus (CF) displays that medium relationships exist between two of its sub-ordinate factors and some sub-ordinate benefits as follows:

a) CF subordinate factor K4.2 *(The Company understands the needs of both its customers and markets well)* displays a medium relationship with sub-ordinate benefits F1.3 *(Meeting customers' needs and requirements).*
b) CF subordinate factor K4.3 *(The Company is fully aware of market trends)* displays a like relationship with sub-ordinate benefit F4.3 *(Increase Company's market share)* and with sub-ordinate benefit F5.2 *(Minimising the negative effects of the company's activities on the surrounding environment to the lowest level).*

In another light CF exhibits a low relationship between two of its sub-ordinate factors and two sub-ordinate benefits as follows:

a) CF sub-ordinate factor K4.1 (*The Company determines current and future customer requirements and expectations*) exhibits a low relationship with sub-ordinate benefits F5.3 (*Enhance the contribution of the company in social and environmental activities as a part of its social and environmental responsibility).*
b) CF sub-ordinate factor K4.2 (*The Company understands the needs of both its customers and markets well*) displays a low relationship with sub-ordinate benefits F1.1 (*Enhance the relationship between the company and its customers*).

Training & Development (T&D) shows that medium relationships exist between two of its sub-ordinate factors and some sub-ordinate benefits as follows:

a) T&D sub-ordinate factor K5.2 *(Resources are available to cover employees training needs and development)* displays a medium relationship with sub-ordinate benefits F2.*2 (The average number of employees' complaints is decreasing)* and F 5.2 *(Minimising the negative effects of the company's activities on the surrounding environment to the lowest level).*

b) T&D sub-ordinate factor K5.3 *(The company evaluates training outputs based on a regular basis)* displays a medium relationship with sub-ordinate benefit F5.3 *(Enhance the contribution of the company in social and environmental activities as a part of its social and environmental responsibility).*

Also T&D indicates that a low relationships exist between only one of its sub-ordinate factor K5.2 *(Resources are available to cover employees training needs and development)* with sub-ordinate benefit F3.3 *(Improving effective utilisation of company's resources).*

Quality Culture (QC) shows that medium relationship exist with only one of its sub-ordinate factor K6.3 (*There is an ongoing creation of quality culture among employees)* and sub-ordinate benefit F4.1 (*Enhancement of the company's profitability*).

On the contrary there exist a low relationship with sub-ordinate factor K6.3 *(There is an ongoing creation of quality culture among employees)* and three sub-ordinate benefits. Firstly, F2.1 (*Increase employees' motivation to update their skills and knowledge*). *Secondly,* F2.3 *(Improve working environment)* and thirdly, F4.2 *(The business growth rate will improve in the market).*

Policy & Strategy (P&S) indicates that a medium relationship exist between two of its sub-ordinate factors and two sub-ordinate benefits as follows:

a) P&S sub-ordinate factor K7.1 *(The concept of quality management is reflected in the company's values, vision and mission)* indicates a medium relationship with sub-ordinate benefit F4.2 *(The business growth rate will improve in the market).*

b) P&S sub-ordinate factor K7.2 ***(****The company's staff particularly middle and junior managers have clear knowledge about policy and strategy related to quality management)* indicates a medium relationship with sub-ordinate benefit F3.1 *(Enhancing the necessary measurements for reducing waste and interruptions related to daily work activities).*

Moreover, a low relationship exist between P&S sub-ordinate factor K7.3 (*The policy and strategy related to quality management is managed and reviewed on a regular basis)* and sub-ordinate benefit F5.1 *(Contribute to establishing good relations within the community where the company carry out its activities).*

Employee Empowerment (EE) shows that medium relationship exist between two of its sub-ordinate factors and sub-ordinate benefits as follows:

a) EE sub-ordinate factor K8.1 (*Employees have authority in their positions to make necessary actions when required)* shows a relationship with sub-ordinate benefits F3.3 (*Improving effective utilisation of company's resources*).

b) EE sub-ordinate factor K8.2 *(The management motivates employees to suggest and create ideas for work improvement*) displays a relationship with sub-ordinate benefits F2.2 (*The average number of employees' complaints is decreasing*).

From another standpoint EE shows a low relationship between sub-ordinate factor K8.2 *(The management motivates employees to suggest and create ideas for work improvement)* with sub-ordinate benefits F2.1 *(Increase employees motivation to update their skills and knowledge)* and sub-ordinate benefits F3.3 *(Improving effective utilisation of company's resources).*

Communication (COM) shows that medium relationships exist between two of its sub-ordinate factors and sub-ordinate benefits as follows:

a) COM sub-ordinate factor K9.2 (*The company gets the required information from the varied internal and external sources in due time*) shows a relationship with subordinate benefits F1.1 *(Enhance the relationship between the company and its customers)* also, a similar relationship is exhibited with F3.3 (*Improving effective utilisation of company's resources*).
b) COM sub-ordinate factor K9.3 (*The company uses the effective means of communication in its activities*) shows a relationship with sub-ordinate benefits F1.2 (*Reduce customers' complaints).*

On a different perspective a low relationship exist between two COM sub-ordinate key factors and sub-ordinate benefits as follows:

a) COM sub-ordinate factor K9.1 (*There is an effective coordination in terms of exchanging and submitting the information between different managerial levels in the company)* shows a relationship exist with sub-ordinate benefit F2.1 *(Increase employees motivation to update their skills and knowledge).*
b) COM sub-ordinate factor K9.3 *(The company uses the effective means of communication in its activities)* shows a relationship with sub-ordinate benefit F2.2 *(The average number of employees' complaints is decreasing),* F4.2 *(The business growth rate will improve in the market)* and F4.3 *(Increase Company's market share).*

Overall, the relationships between the sub-ordinate key factors of TQM implementation and the sub-ordinate benefits of TQM implementation in this part of the framework are based on the idea that in order to achieve the best benefits of TQM, it is essential to improve and enhance the key factors related with each of the benefits based on the kind of relationship.

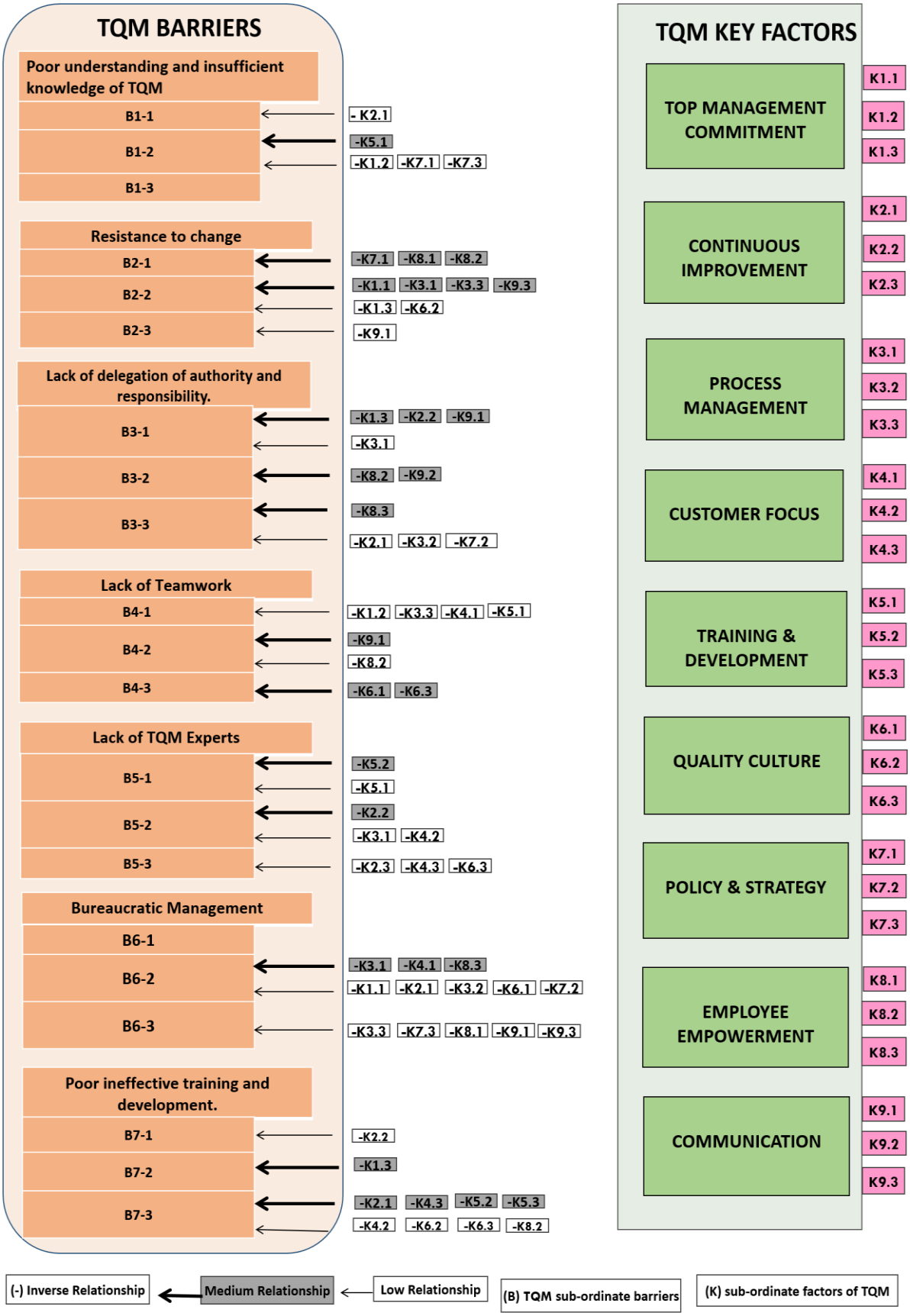


Figure 7.1 The first part of the revised version of the conceptual framework

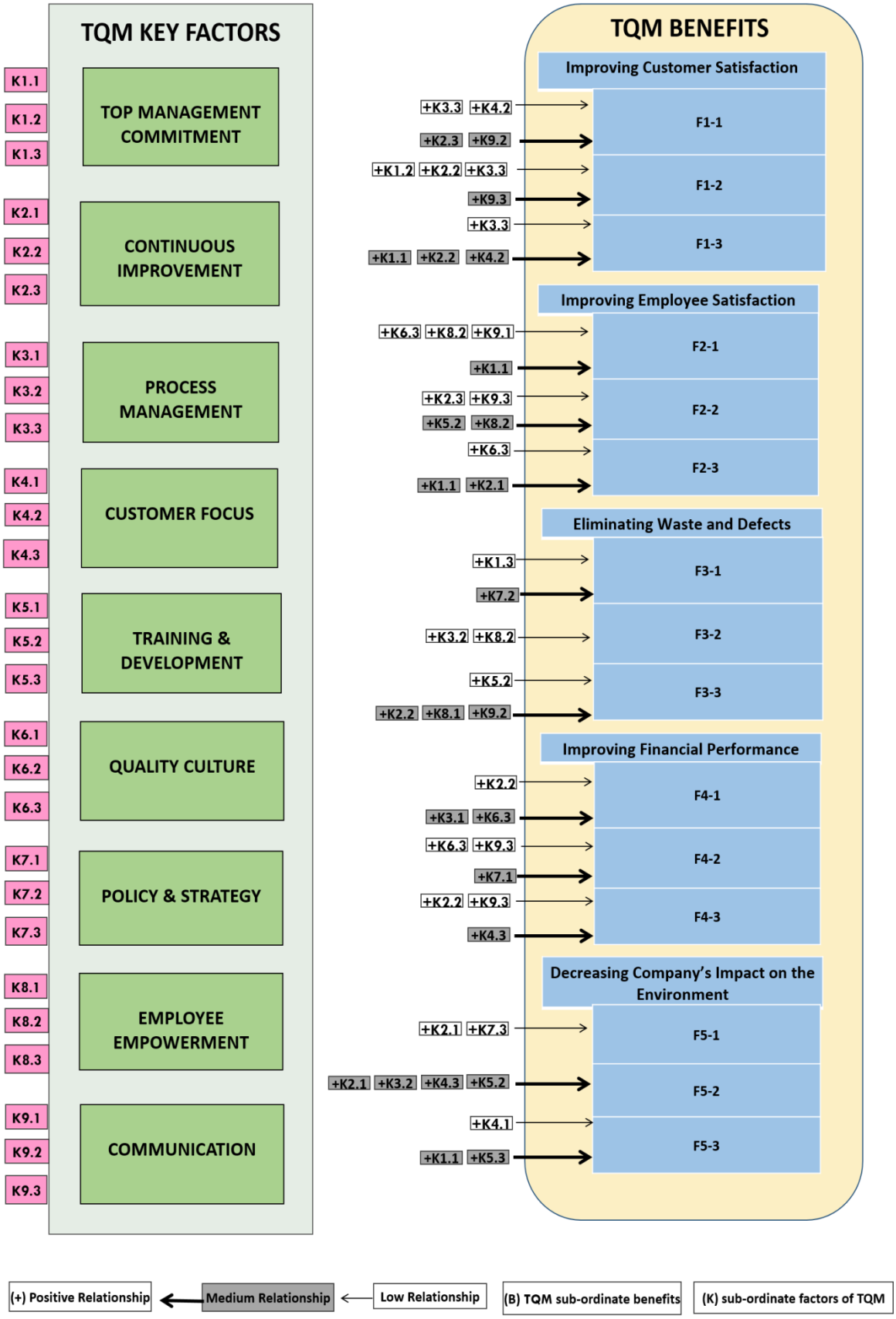


Figure 7.2 The second part of the revised version of the conceptual framework

7.9. Validation and amendment of the findings related to the conceptual framework

Based on the empirical findings obtained from the semi-structured interviews and questionnaire survey analyses and comparison with the literature review, the researcher developed a TQM conceptual framework. The framework aims to facilitate TQM implementation in Iraqi oil companies.

With the intention of verifying and validating the framework, the researcher prepared and sent an invitation letter (see Appendix C) to four key persons to participate in the validation process of the revised framework via semi-structured telephone interviews. Table 7.1 illustrates the characteristics of the participants. Three of them were academics and one was a practitioner who belonged to the studied company. These interviews were conducted through the medium of Arabic and their responses were first translated into English followed by writing up transcriptions.

Table 7.1 The characteristics of the participants who contributed to the validation phase

Type of organisation	Position	Participated in the research data collection
University	Academic	No
University	Academic	No
University	Academic	No
Oil industry	Manager	Yes

Each of the participants was contacted to obtain their consent to participate in the validation process and to provide them with a brief summary of the research aims and objectives, the research methods used and the key findings. They were then given details of the conceptual framework which was intended to facilitate TQM implementation in Iraqi Oil companies. Their candid remarks about the framework and their evaluation of its usefulness were requested. The academics were selected on the basis of their scholarly acquaintance with the concept of TQM in addition to some practical experience of its implementation in organisations.

Prior to the interviews, a preparatory session by telephone was held with most of the participants in order that any questions or issues could be clarified. The semi-structured interviews then took place by telephone at a pre-arranged time convenient for the participants.

Each interview was between 25 to 30 minutes in duration and the responses were written in note format.

The following questions were asked of each participant and they were encouraged to give as much detail as they wished in their responses:

- How clear do you think the framework is presented? Is it easy to understand? Can you suggest any improvements to its presentation?
- What do you think about the structure of the framework? Why?
- How useful do you think the framework will be in its present format for implementing TQM in the oil companies? Could it be improved in any way?
- What do you think about the entire relationships within the framework? The relationships between TQM key factors and TQM barriers on one hand and the relationships between the TQM key factors and TQM benefits on the other hand?
- Do you have any suggestions?

In the following section, the purpose of each question is considered along with a summary of the responses to them.

7.9.1. Validation of the revised conceptual framework

The first question was designed to elicit from the participants their views of how easy it was to understand the framework and whether they thought any aspect of it could be improved in terms of presentation. Three of the interviewees stated that the framework should be illustrated in one comprehensive diagram instead of two separated diagrams. According to one of them *" presenting the framework in two separated figures is not necessary, that is why I am suggesting that merging these two figures in one diagram will be more relevant".* In the same context another participant strongly confirmed the same idea by saying*, "Instead of segregating the conceptual framework into two figures it is better to combine these two figures in one integrated diagram that depicts the whole components and relationships more clearly"*. Additionally, he added *with regards to the title of the framework: "I think it is better to modify the name of the framework to match with the aim of this study; thus the name might be: "the final version of TQM conceptual framework required to facilitate TQM implementation in Iraqi upstream oil sector".*

Two of the participants expressed some concerns about the presentation of the framework. The first stated that "Although I like the way of presenting the framework and the way it

linked between factors however, with respect to the language used I do believe that it is important to translate the framework into Arabic language as the Arabic version will enhance its clarity to the practitioners". Likewise, another participant stated that an Arabic version of the framework was required since it would be used in the Iraqi context where Arabic is the official language.

The second question asked about what the participants thought about the structure of the framework. This question aimed at finding out what the participants thought about the overall structure of the framework for showing the various interrelationships between its different elements. Two of the participants felt that the use of shapes was inappropriate for presenting a clear picture of how various components were interlinked.

One of them stated that "to avoid ambiguity and similarity, all the numbers that related to each key factor of TQM should be modified or their places changed". He added, "the signs of plus and minus, which indicate to the kind of relations between the components of the framework should be linked with the arrows rather than the numbers, as the arrows refer to the kind of relationship between the main components".

Similarly, another participant made the same suggestion in addition to changing the shape of the arrows. He stated, "I think the shapes of arrows used to link between the components inside the framework should be modified to be clearly distinguished between medium relationships and low relationships. Therefore, for better understanding, medium relationship should be linked with green arrows, while the low relationships should be linked with red arrows, both with the same size".

The third question aimed at eliciting the participants' evaluation of the usefulness of the framework for TQM implementation in the oil companies.

There were differing views expressed by the respondents. One of them said that he was satisfied with the current design of the framework, while the other three unanimously stated that the framework needed some modifications to enhance its applicability. One of them remarked that "*Management should establish appropriate measurements and indicators to regularly measure the company's performance against its competitors and communicate the results to its staff."* In contrast, the second interviewee stated that "*The framework needs to consider the social responsibility of the company towards its stakeholder and the environment"*

The fourth question asked, what do you think about the entire relationships within the framework? The relationships between TQM key factors and TQM barriers on one hand and the relationships between the TQM key factors and TQM benefits on the other hand.

All the interviewees fully agreed that both categories of these relationships had significant importance on the formulation of the conceptual framework of TQM implementation. Thus, with respect to this question, no amendment has been suggested by the interviewees.

With regards to the last question which is "Do you have any suggestions" the following remarks were elicited from the participants:

Three of the respondents agreed that the framework provided a positive opportunity for the company to implement TQM. Additionally, another interviewee added that "*Since this study is devoted to Iraqi upstream oil industry, therefore it is important to illustrate the role of the government in leading and encouraging the upstream oil companies to employ TQM with the help of a political economy approach."*

With respect to the suggestions and comments provided by the respondents to refine the framework, the following points represent the suggestions that were adopted as amendments to the conceptual framework.

1. Merging the two diagrams that represent the two parts of the framework in one integrated diagram, which illustrated the overall conceptual framework.
2. Altering the title of the framework
3. Translate the framework into Arabic (see Appendix D)
4. Making the following modifications to the framework diagram:
    a. Moving the placement of the numbers associated with the TQM key factors.
    b. Changing the plus and minuses to be placed on the arrows referring to the kind of relationship between the various components of the framework.
    c. Modifying the shape and colour of the individual arrows that represent the kind of relationship between the components of the framework.

After meeting the above mentioned suggestions and comments Figure 7.3 illustrates the final version of the TQM conceptual framework of this study.

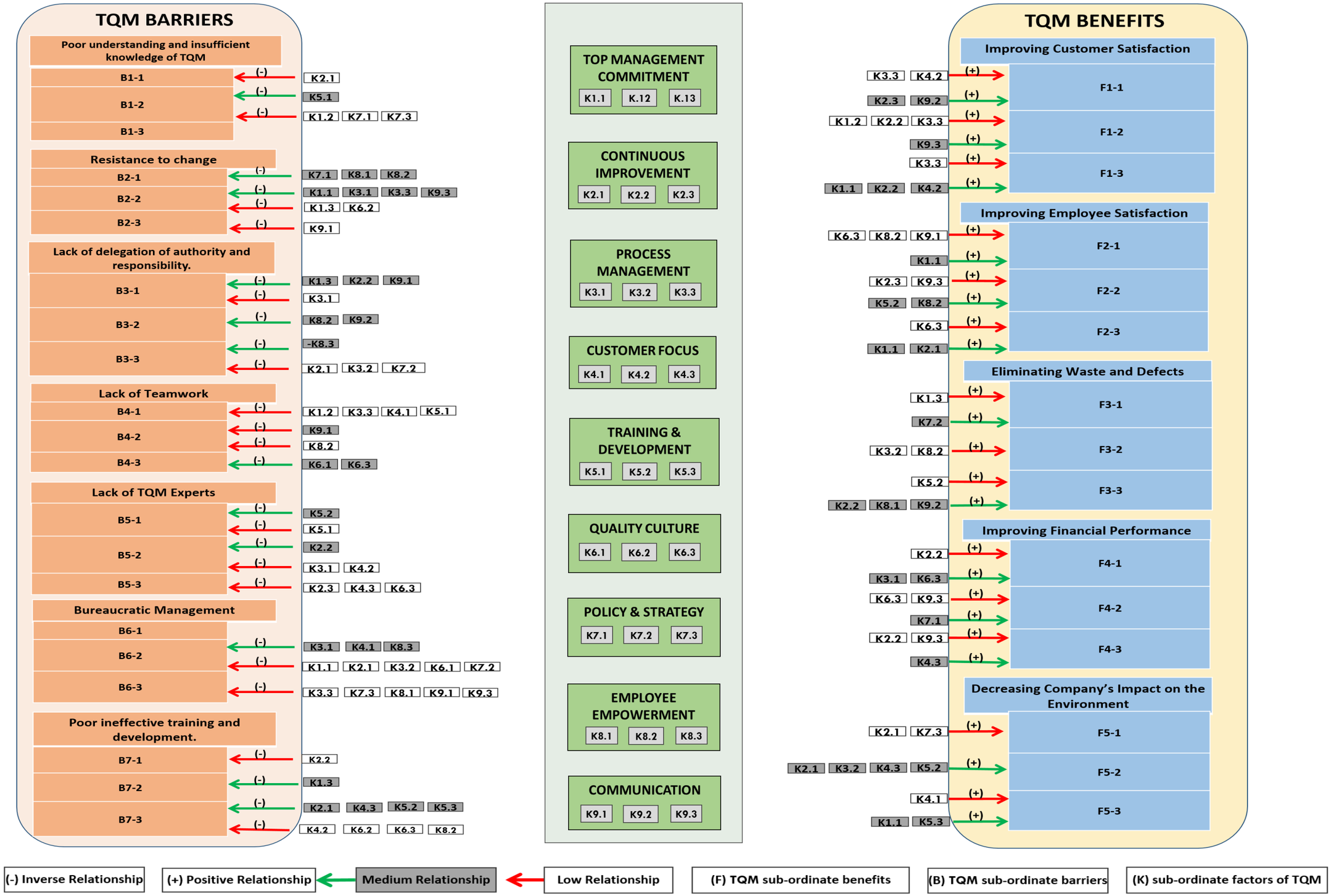


Figure 7.3 The final version of the conceptual framework required to facilitate TQM implementation in Iraqi upstream oil sector.

7.10. Chapter Summary

This chapter has discussed in details the main findings derived from the analysis of qualitative and quantitative chapters and linked these findings to the literature review. In view of that, the main four key dimensions of TQM implementation are discussed including: its levels of awareness and knowledge; the key factors; the barriers; and the benefits. This is followed by investigating the relationships in parallel of both: the key factors with the main barriers; as well as the key factors with the main benefits. Furthermore, the revised version of the conceptual framework is validated via a means of semi-structured interviews with four experts who provided valuable suggestions to produce the final version of the TQM conceptual framework. In the next chapter the conclusions that can be drawn from the conduct of this research are presented.

CHAPTER EIGHT

CONCLUSION

Chapter 8: Conclusion

8.1.Introduction

Chapter seven presented a discussion of the research findings based on the results obtained through data analysis with reference to the existing literature review. Additionally, it included the validation process of the research framework to produce the final version of the TQM conceptual framework. The main findings were summarised and presented based on the results obtained via the qualitative data analysis (Chapter 5) and the quantitative data analysis (Chapter 6). The findings have been further confirmed by the review of the existing literature (Chapter 2). The structure of this chapter is set out below;

1. Synthesising the research conclusions drawn against each objective.
2. Contribution to knowledge.
3. Limitations of the study.
4. Recommendations for further research.

8.2.Synthesis on the objectives of the study.

As stated at the outset, the present study aimed to develop a framework to facilitate TQM implementation in Iraqi upstream oil sector. The aim was examined through six research objectives. The first objective was to determine the main aspects relating to TQM; this was achieved by way of a comprehensive literature review. The second objective was to stablish the level and the extent of TQM awareness within Iraqi upstream oil sector; this was achieved by way of a comprehensive literature review and supported by semi-structured interviews with senior managers. The third objective was to identify and evaluate the key factors required to facilitate TQM implementation in Iraqi upstream oil sector; this was addressed via semi-structured interviews and a questionnaire survey supported by a comprehensive literature review. The fourth objective was to establish the barriers of implementing TQM in Iraqi upstream oil sectors; this was achieved by conducting semi-structured interview supported by questionnaire survey with reference to the literature review. The fifth objective was to determine the benefits of applying TQM within the Iraqi upstream oil sector; this was accomplished by semi-structured interviews and questionnaire survey, in addition to the comprehensive literature review. The sixth objective was to develop and validate a conceptual framework to facilitate TQM implementation in Iraqi upstream oil sector; this was objectively

validated using semi-structured interviews with experts. The following sections will summarise and present the key findings related to each objective.

8.2.1. Objective One; To determine the main aspects relating to ToTotal Quality Management.

The first objective of the study required the development of a coherent, comprehensive understanding of TQM. To achieve this objective, the researcher built up an understanding through a critical literature review; thus, different books, articles, academic papers, professional blogs and experts' websites were reviewed, which provided directions in setting the major determinants for investigation through the study. For example, the main stages of the TQM evolution have been indicated, in addition to clarifying several perspectives and philosophies about TQM through highlighting the contributions of the most famous quality Gurus such as Deming, Juran, Feigenbaum, Crosby, Ishikawa and Taguchi (see section 2.4 in chapter 2).

The study dealt with an understanding of the definition of TQM with respect to other definitions by several authors and scholars in order to provide the relevant definition of TQM in this study. Therefore, based on the main aspects of TQM definitions that have been stated in section 2.5, the researcher developed a common definition of TQM.

The focus was on highlighting the main TQM key factors required for TQM implementation. Thus, the findings of section 2.6 in the literature review have identified nine factors: top management commitment, quality culture, policy and strategy, training and development, communication, process management, customer focus, continuous improvement and employee empowerment.

The study, through a literature review in sections 2.7.1 and 2.7.2, has also revealed several kinds of barriers that hinder TQM implementation whether in developed countries, in general or developing countries in particular, where they have a similar economic environment to the Iraqi context in many aspects. Moreover, the researcher summarised the main barriers of TQM implementation and developed Table 2.2 in chapter 2 which involves the types of barriers, the author's name and the year of study that have been found in the references.

The findings of section 2.8 have identified and explained in detail the main benefits of applying TQM in companies, especially in terms of performance improvement. These benefits

lead to overall organisational improvement, not only at the current time, but also for future sustainability and growth.

Since this research study aims to develop a framework to facilitate TQM implementation in Iraqi oil companies, it is, therefore, important to shed light on the most prominent and well-known TQM models worldwide. Therefore, the findings of section 2.9 presented an opportunity to review the models most recognised within management studies for their excellence as instruments most commonly used by organisations to perform self-assessment. Consideration is therefore given to the Deming Prize model, MBNQA, EQAM and Oakland TQM model. After reviewing the literature, the researcher suggested the initial conceptual framework for this research (see section 2.11 in chapter 2).

The findings of this objective lead to the second objective, which was to understand the level and the extent of TQM awareness within Iraqi upstream oil sector.

8.2.2. Objective Two; To establish the level and the extent of TQM awareness within Iraqi upstream oil sector.

To achieve this objective, a proposed data collection by means of semi-structured interviews and a questionnaire survey were conducted to provide insight into the level of TQM awareness within the Iraqi upstream oil sector. The semi-structured interviews revealed that there were diverse interviewee perceptions of TQM. However, the majority of the interviewees have acknowledged that they were familiar with the concept and the benefits. This acknowledgement clearly appears through an emphasis in the interview responses towards the fundamental principles of TQM that were suggested by this research. Therefore, it can be concluded that the interviewees had a clear picture and awareness regarding the role, impact and benefits of implementing quality initiatives in the company (see section 5.3.1 in chapter 5). Likewise, the outcome which emerged from the questionnaire showed that the level of awareness among the participants was encouraging in terms of applying TQM (see section 6.2.2 in chapter 6). Overall, the study findings indicated that, although the philosophy of TQM is not implemented in Iraqi oil companies at the present time, the outcomes related to the level of awareness and knowledge of the interviewees and other participants regarding quality and quality management in general and TQM in particular, were considered to be more than acceptable.

8.2.3. Objective Three; To identify and evaluate the key factors required to facilitate TQM implementation in Iraqi upstream oil sector.

To achieve this objective the literature review findings directed the researcher to initiate the work through highlighting eight TQM key factors required for TQM implementation in different companies worldwide (see section 2.6 in chapter 2). The researcher utilised both semi-structured interviews and a questionnaire survey to obtain primary data related to this objective. The semi-structured interview results revealed similarities and opposing viewpoints regarding identification and verification of TQM key factors. The interviewees have had similar opinions in terms of identification and verification, with three TQM factors mentioned, namely; "*Top management commitment*, *continuous improvement* and *customer focus"*. The results revealed that there were three additional factors of strategy and policy, quality culture, and training and development. Notably, all of these factors were named when the respondents were asked to identify TQM factors related to strategic planning, cultural change and awareness enhancement. Consequently, it is possible to conclude that "*Strategy and policy*, *quality culture* and *training and development"* are all agreed as essential components. Additionally, through verification of the TQM key factors, most of the interviewees strongly believe that both *process management* and *communication* also represented key factors of TQM implementation. Additionally, another key factor emerged from the analysis of interviewees' answers, which is "*Employee empowerment"* (see sections 5.3.2.1 and 5.3.2.2 in chapter 5). On the other hand, the findings of the questionnaire in section 6.2.3 showed that nine key factors of TQM provided a comprehensive view of participants' opinions and showed varied answers with respect to each key factor. However, it clarified that the above mentioned nine factors represented the main key factors of TQM implementation.

8.2.4. Objective Four; To establish the barriers of implementing TQM in Iraqi upstream oil sector.

To achieve this objective, the primary data were collected from both semi-structured interviews and a questionnaire survey. Additionally, in order to build an understanding of the main barriers to TQM implementation, the researcher created comprehensive knowledge through literature review, which demonstrated extensive research that has been carried out in numerous companies whether in developed or developing countries to investigate and identify the barriers that hindered TQM implementation (see section 2.7.1 and 2.7.2 in chapter 2). The key findings of interviews in section 4.3.3 showed that the majority of the interviewees

regarded *resistance to change* as one of the significant obstacles. While, *poor understanding* and *insufficient knowledge of TQM* also represented major barriers that could impede successful TQM implementation. According to half of the interviewees' responses, the results have exposed three more barriers, which included "*Poor ineffective training and development*, *lack of TQM experts*, and *bureaucratic management*" that could all impede the successful implementation of TQM. Notably, in relation to ineffective or insufficient training and development programmes, the results clearly demonstrate that this issue could have a detrimental, direct and negative impact on the ability of the company to employ TQM. With regards to the lack of TQM experts, the results have shown that, although the company has staff qualified in quality management systems, their knowledge and skills, as well as their number, are insufficient to implement TQM effectively. With respect to *bureaucratic management*, according to the findings, this factor is associated with the following of routine instructions and rigid procedures, thus diminishing creativity. Additionally, two of the interviewees have suggested that a *lack of teamwork* between the departments was barrier to TQM implementation. According to the interviewees, this is because every department has main responsibilities and mostly work separately from the other departments. Finally, only one of the participants has pointed out that a *lack of delegation of authority and responsibility* represented an obstacle. Furthermore, the findings of the questionnaire survey in section 6.2.4.1 revealed that the seven barriers of TQM which emerged from the interviews have clarified a high degree of support from the respondents. Therefore, the respondents' answers mainly revealed a high degree of agreement with the seven barriers of TQM mentioned above.

8.2.5. Objective Five; To determine the benefits of applying TQM within the Iraqi upstream oil sector.

Similar to the fourth objective, this objective was achieved on the basis of the semi-structured interviews and questionnaire survey. The semi-structured interviews findings in section 5.3.4 in chapter 5 revealed that there were five main benefits from implementing TQM. These benefits were: "*Improving customer satisfaction, improving employee satisfaction, improving financial performance, eliminating waste and defects and decreasing the company's impact on the environment".* These five TQM benefits have been highlighted in the literature review in some details (see section 2.8 in Chapter 2). Furthermore, according to the primary findings of a questionnaire survey in section 6.2.5 in chapter 6 all the five benefits have received a high degree of support from the participants, showing that the level of agreement for these statements was high.

8.2.6. Objective Six; To develop and validate a conceptual framework to facilitate TQM implementation in Iraqi upstream oil sector.

The sixth objective of the research set out to develop the conceptual framework which was previously developed through two stages. The first stage was through literature review (see Section 2.11 in Chapter 2) and the second stage was through the key findings of analysing data from semi-structured interviews (see Section 5.4 in Chapter 5). The evaluation process has been carried out via conducting inferential statistics based on Spearman's Correlation analysis (see Section 6.3 Chapter 6). The analysis was very useful in understanding the relationships between the main elements of the conceptual framework. Thus, from the research findings, it has been found that there is an inverse correlation between each key factor of TQM and specific TQM barriers. This explains that each barrier required the oil company to improve and enhance certain key factors in order to improve its opportunities regarding overcoming or reducing the negative impact of these barriers that impeded successful TQM implementation. On the other hand, the findings also revealed that there was a positive relationship between the key factors of TQM and the benefits of TQM. The findings indicated that each TQM benefit requires the oil company to improve and enhance certain TQM key factors in order to improve its chance of achieving the desire results.

After finalising the evaluation process, the conceptual framework has been discussed and revised (see section 7.7 chapter 7). This framework was validated and refined with the new suggestion and comments obtained through conducting interviews with four experts (see Table 7.1 in Chapter 7). Accordingly, the final conceptual framework that was required to facilitate TQM implementation in Iraqi upstream oil sector was illustrated in Figure 7.3 in Chapter 7.

8.3. Contribution to the Body of Knowledge

This study contributes into the body of TQM knowledge by providing the main achievements in terms of the following academic and practical contributions.

8.3.1. Academic Contribution

1. This research, to the best of the researcher's knowledge, is the first to develop a framework for TQM implementation in Iraqi companies. Thus, this research will contribute to overcoming the lack of availability of such a framework in Iraq.
2. The research will contribute to minimising the gap found in the limited amount of empirical research of TQM implementation in the oil industry, especially in developing Arab countries.
3. The results of the current research are expected to stimulate and encourage others to undertake follow-up research on quality, particularly in the area of TQM. Indeed the research is expected to open the doors for researchers and academics to undertake further research to explore and identify additional elements affecting the adoption of TQM since it is becoming an increasingly important and critical part of the business world.
4. Finally, this study has been important for the researcher’s own personal and professional development. Working at PhD level has introduce the researcher to a wide range of research skills. These include the use of quantitative methods to confirm the findings of a qualitative method. Additionally, the researcher has been able to reach an in-depth critical understanding and appreciation of the TQM philosophy. This knowledge and personal development has equipped the researcher to be able to appraise other management scenarios in the future, particularly in Iraq, in order to adopt the TQM Implementation Framework from this study to benefit other organisations. Additionally, it is hoped that this research has made some contribution, however modest, to the University’s corpus of scholarship.

8.3.2. Practical Contribution

1. The outcomes of this research may be employed as a tool that encourages the implementation of TQM, not only in the oil sector, but also in other sectors. Moreover, they can be used to better coordinate, redirect and amend the work efforts and targets in terms of adopting and implementing TQM.
2. This study provides empirical evidence that contributes to raising the awareness of the significant role of TQM practices as an important philosophical and strategic tool, which could help the oil company improve its entire performance.
3. The findings of this research will provide a clear perspective for practitioners on how to develop a conceptual framework that will facilitate TQM implementation specifically for their companies, not only in Iraq, but also in other developing countries where they have a similar oil industry environment.

8.4.Limitation of the Study

1. Firstly, the research employed a single case study research strategy in the context of Iraqi upstream oil sector, hence one of the major limitations of this research is with the validity of the study's findings in relation to other Iraqi oil companies. However, the researcher provided clear descriptions about the phenomenon being studied, the unit of analysis and the participants involved in this study so that the findings of the study can be generalised to other Iraqi oil companies particularly those working in upstream sector.
2. Secondly, due to the fact that TQM has, as yet, never been completely implemented in the Iraqi oil industry, the review of the literature had to rely on studies in other contexts. Some of these studies, such as those based on developed countries, were characterised by issues which differed from those which were prevalent in Iraq.
3. For the purposes of an exploratory study set in Iraq, it was important that the researcher should have access to various documents which could cast light on the current state of management in the Iraqi oil companies. However, the researcher was denied access to certain documents which could have been important for this study. Despite this limitation, the researcher acknowledges that those documents might have contained sensitive company information which was not intended for public dissemination. This point has been addressed as required.
4. The final limitation is the difficulty of generalising the findings of this research, which are sector specific, to organisations other than those in the Iraqi oil industry.

8.5. Recommendation for Further Research

As a consequence of the limitations discussed in the previous section, it follows that a number of recommendations can be made as pointers towards issues which require further investigation. These recommendations are presented as follows:

1. Since the Iraqi oil and gas industry represent major industrial sector in terms of size and importance to the national economy, there is ample scope for further studies within this sector. Additionally, despite being primarily industrial in nature, this industry embraces many different types of working environments which merit investigation in its own rights. For example, administration and operational research represent distinctive departments within the oil and gas industry and these might require some modifications to the TQM implementation. In-depth multi-case study strategies could be carried out by including several oil companies to explore the level and impact of TQM practices in all areas of performance.
2. The research could be utilised or replicated by other researchers in other public or private sectors in Iraq such as health, education, tourism, etc., to study the phenomenon of TQM from the perspective of those sectors, and to suggest potential improvements in addition to providing the opportunity for comparisons.
3. Further research could be carried out to establish a model for the sustainability of TQM to mitigate the substantial environmental damage caused by the oil companies.
4. Whilst the findings of this research are sector specific, it is the belief that they could be generalised to other companies operating in a Middle Eastern context. Therefore, further investigation is required to test the wider generalisability of these findings.

8.6.Final Note

The main findings of the study obtained from literature and case study investigation revealed that TQM has been widely researched and adopted in industrialised nations, but in the context of Iraq no single study exists which adequately covers the TQM implementation in general and in the Iraqi oil industry in particular. Accordingly, the study has addressed a knowledge gap on the level of TQM implementation in Iraqi oil companies. The study also concluded by creating a conceptual framework to facilitate TQM implementation in Iraqi upstream oil sector. The developed framework was grouped into three themes namely key factors of TQM implementation, barriers that hinder TQM implementation and the desired benefits of TQM implementation. It can be concluded that the developed framework will facilitate the implementation of TQM practices within the Iraqi upstream oil companies which will in return have positive impacts on their overall performance.

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Appendix A: Questionnaire (invitation letter and questions)

Dear Madam/Sir,

My name is Abbas Abdulhameed Aletaiby I am faculty member of the University of Basrah in Iraq and currently studying PhD at the School of the Built Environment, The University of Salford, UK.

As part of data collection for my PhD study, you are kindly invited to participate in this study by providing information that might be valuable to my PhD study. My research titled "Implementation of Total Quality Management in Iraqi Oil Companies". The research aims to develop a framework to facilitate Total Quality Management implementation in Iraqi Oil Companies.

Therefore, I am requesting your kind cooperation in giving your time, experience and thoughts by answering my questions during the semi-structure interview and the questionnaire form provided. Your cooperation is most essential as the deliverables of the case study could be beneficial to both the country and academia.

Thank you very much for your participation.

Abbas Abdulhameed Aletaiby

PhD research student
School of Built Environment
University of Salford, UK

Questionnaire Survey Instructions

* There are no right or wrong answers to the questions in this survey. Select the most appropriate answer for each question based on your view/experience.

* It is necessary in this study that all questions are answered, as the questionnaire is designed to achieve particular research objectives, and it is hoped not to offend respondents in any way. If there is question(s) that you are unwilling or unable to answer, you may skip to answer it and continue answering the remainder of the questionnaires.

* Remember that both your identity and your position in the company will remain strictly confidential.

Section one: Characteristics of the respondents

1. Based on the following categories what is your position in the company?

- ☐ Top management
- ☐ Middle management
- ☐ Junior management
- ☐ Quality management
- ☐ Other (specify please)

2. What is your qualification?

- ☐ Secondary or high school
- ☐ Vocational school/institute
- ☐ Higher institute degree
- ☐ Bachelor degree
- ☐ Master degree
- ☐ PhD degree
- ☐ Other (specify please)

3. How many years of experience in this company do you have?

- ☐ (1) - (5) years
- ☐ (6) - (10) years
- ☐ (11) - (15) years
- ☐ (16) - (20) years
- ☐ More than (20) years

Section Two: Awareness and knowledge of TQM

1. What does the word quality mean to you?

- ☐ Quality is the level of fitness required for achieving aims.
- ☐ Quality is conformism to company's requirements.
- ☐ Quality is equivalent to customer satisfaction.
- ☐ Quality is doing things right at the first time.
- ☐ Other (Clarify please)

2. Which of the following quality management systems or techniques have you better knowledge about it? (you may choose more than one)

- ☐ ISO 9001/ 2008
- ☐ ISO 29001
- ☐ Statistical process control (SPC)
- ☐ Lean quality management
- ☐ Six sigma
- ☐ Management integrated system (MIS)

3. What is your conception about Total Quality Management?

- ☐ TQM is management philosophy focusing on continuous improvement, customer satisfaction, employee involvement and supplier partnership.
- ☐ TQM is an integrated approach to achieving high-quality output through continuous improvement.
- ☐ TQM is an integrated wide strategy for improving product and service quality.

☐ TQM is a management system which comprise values, techniques, and tools and that the overall goal of the system is enhanced value to customers by continually improving the organisational process.

4. What is the importance of TQM implementation for the companies? (you may choose more than one)

☐ Improve company's entire performance

☐ Reduce time, cost and waste

☐ Enhance company's reputation towards its environment

☐ Provide competitive advantage

5. Indicate the level of familiarity with the following TQM key factors or principles:

TQM Key factors	Non-familiar	Low familiarity	Not Sure	Familiarity	Strongly familiarity
Top Management Commitment					
Customer Focus					
Continuous Improvement					
Process management					
Training and Development					
Quality Culture					
Policy and Strategy					
Employee Empowerment					
Communication					

Section Three: The key factors of TQM

State your opinion in terms of the following statements that related to each of the following TQM key factors. Your opinion will be used to identify whether your company had implemented or considered these factors in its activities or not.

Please tick (√) in the box that matches with your appropriate answer.

Code	Key factors or principles of TQM	1	2	3	4	5
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	Top Management Commitment					
K1.1	Top management continually demonstrates its commitment to quality					
K1.2	Top management is inclined to allocate adequate time and resources for quality management					
K1.3	Top management uses performance indicators to ensure adequate performance					
	Continuous improvement					
K2.1	All **company** employees believe that quality improvement is their individual responsibility					
K2.2	The company emphasises improvement rather than maintenance					
K2.3	The company emphasises the best implementation of continuous improvement processes for all tasks at all levels					
	Process Management					
K3.1	The company has appropriate management measures to control and improve the production or delivery process					
K3.2	The management provides relevant measurements to cover the key processes in the company					
K3.3	The company uses and follows clear working procedures and instructions					
	Customer Focus					
K4.1	The company determines current					

	and future customer requirements and expectations					
K4.2	The company understands the needs of both its customers and markets well					
K4.3	The company is fully aware of market trends					
	Training and Development					
K5.1	Quality-related training given to managers, supervisors and employees					
K5.2	Resources are available to cover employees training needs and development					
K5.3	The company evaluates training outputs based on a regular basis					
	Quality Culture					
K6.1	Changing traditional culture is one of the most important steps towards successful implementation of TQM in the company					
K6.2	Adopting TQM culture will assist the company to fit with the changes in the business environment					
K6.3	There is an ongoing creation of quality culture among employees					
	Policy and Strategy					
K7.1	The concept of quality management is reflected in the company's values, vision and mission					
K7.2	The company’s staff particularly middle and junior managers have clear knowledge about policy and strategy related to quality management					
K7.3	The policy and strategy related to quality management is managed and reviewed on a regular basis					
	Employee Empowerment					
K8.1	Employees have authority in their positions to make necessary actions when required					
K8.2	The management motivates employees to suggest and create ideas for work improvement					

K8.3	Top management involves middle and junior managers in decision making					
	Communication					
K9.1	There is an effective coordination in terms of exchanging and submitting the information between different managerial levels in the company					
K9.2	The company gets the required information from the varied internal and external sources in due time					
K9.3	The company uses the effective means of communication in its activities					

Section four: Exploring barriers to implementing TQM in the company.

Please tick (√) in the box that matches with your appropriate answer.

Code	Barriers of TQM	1	2	3	4	5
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	Poor understanding and insufficient knowledge of TQM					
B1.1	Poor of understanding of the purposes and the benefits of TQM					
B1.2	There is unclear awareness of TQM in the company					
B1.3	There are difficulties in learning and implementing TQM					
	Resistance to Change					
B2.1	Employees prefer to follow instructions rather than take initiatives and create a proposal in their jobs					
B2.2	It is difficult to change the existing attitude of middle and junior management					
B2.3	Most of the staff are resistant to being involved in training and development programmes					
	Lack of Delegation of Authority and Responsibility					
B3.1	Lack of delegated authority from the top management to other managerial levels					

B3.2	Work responsibilities are not delegated at the company					
B3.3	Managers at middle and junior levels follow instructions more than creating proposals in their jobs					
	Lack of Teamwork					
B4.1	Weaknesses of cross-functional cooperation and coordination between departments					
B4.2	Team-spirit is not regarded as an important factor for improving and encouraging the employees to work in a team					
B4.3	Lack of effective teams or team building skills					
	Lack of experts of TQM					
B5.1	Lack of experts and specialists in TQM					
B5.2	Shortage of knowledge and skills to implement TQM					
B5.3	There are wrong people in the wrong position					
	Bureaucratic management					
B6.1	The bureaucratic management style is prevalent					
B6.2	The management style does not encourage and motive the staff to be innovative and efficient.					
B6.3	The company focuses on the results more than the processes					
	Poor ineffective training					
B7.1	There is a shortage of qualified trainers at the company					
B7.2	There are difficulties in achieving training targets at the company					
B7.3	Lack of using modern training methods at the company					

The potential benefits of implementing TQM in the company

Please tick (√) in the box that matches with your appropriate answer.

Code	The benefits of TQM implementation	1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree
	Improving Customer Satisfaction					
F1.1	Enhance the relationship between the company and its customers					
F1.2	Reduce customers' complaints					
F1.3	Meeting customers' needs and requirements					
	Improving Employee Satisfaction					
F2.1	Increase employees motivation to update their skills and knowledge					
F2.2	The average number of employees' complaints is decreasing					
F2.3	Improve working environment.					
	Eliminating waste and defects					
F3.1	Enhancing the necessary measurements for reducing waste and interruptions related to daily work activities					
F3.2	Decreasing the average number of defects and errors in work activities					
F3.3	Improving effective utilisation of company's resources					
	Improving Financial Performance					
F4.1	Enhancement of the company's profitability					
F4.2	The business growth rate will improve in the market					
F4.3	Increase company's market share.					
	Decreasing the Company's Impact on the Environment					
F5.1	Contribute to establishing good relations within the community where the company carry out its activities					
F5.2	Minimising the negative effects of the company's activities on the surrounding environment to the lowest level					
F5.3	Enhance the contribution of the company in social and environmental activities as a part of its social and environmental responsibility					

Appendix B: Semi-structured interview (invitation letter and questions)

Dear Madam/Sir,

My name is Abbas Abdulhameed Aletaiby I am a faculty member of the University of Basrah in Iraq and currently studying PhD at the School of the Built Environment, The University of Salford, UK.

As part of data collection for my PhD study, you are kindly invited to participate in this study by providing information that might be valuable to my PhD study. My research titled "Implementation of Total Quality Management in Iraqi Oil Companies". The research aims to develop a framework to facilitate Total Quality Management implementation in Iraqi Oil Companies.

Therefore, I am requesting your kind cooperation in giving your time, experience and thoughts by answering my questions during the interview. Your cooperation is most essential as the deliverables of the case study could be beneficial to both the country and academia.

Thank you very much for your participation

Abbas Abdulhameed Aletaiby

PhD research student
School of Built Environment
University of Salford, UK

1. Based on your work activity what does the word quality means to you?

2. Have you participated in training programmes or courses related to quality management initiatives?

If yes, give details?

If no, give reasons?

3. What are the main reasons for implementing a quality management system in your company?

4. To what extent are you familiar with the TQM concept?

5. If your company is seeking to adopt and implement TQM, what are the key factors required for successful TQM implementation?

6. Which of the following factors are essential for TQM implementation and why ? (chose from the following list)
   - ❖ Top management commitment / leadership
   - ❖ Customer satisfaction
   - ❖ Policy and strategy
   - ❖ Process management
   - ❖ Continuous improvement
   - ❖ Training and
   - ❖ Quality culture
   - ❖ Communication

   Are there other factors that you would to add…….?
7. Do you think that adopting and implementing TQM in your company will face barriers? If yes what are the main barriers that may hinder the adoption and implementation of TQM in your company?

   If no, give reasons?

8. Do you think that the implementation of TQM will achieve important and useful benefits for the company?

   If yes what are the main potential benefits that your company will acquired by applying TQM?

   If no, give reasons?

Appendix C: Invitation E-mail to conduct phone based interview

Dear Sir,

My name is Abbas Abdulhameed Aletaiby I am faculty member of the University of Basra in Iraq and currently studying PhD at the School of the Built Environment, The University of Salford, UK. As part of my PhD study requirements, you are kindly invited to conduct phone-structured interview to verify and validate the TQM conceptual framework (see the covering letter please). It will be very much appreciated if you send me your availability for no more than 25 to 30 minutes interview in your convenient time. Bearing in mind that I will have a fair conversation with you prior to the interview to make sure you are fully aware of the research.

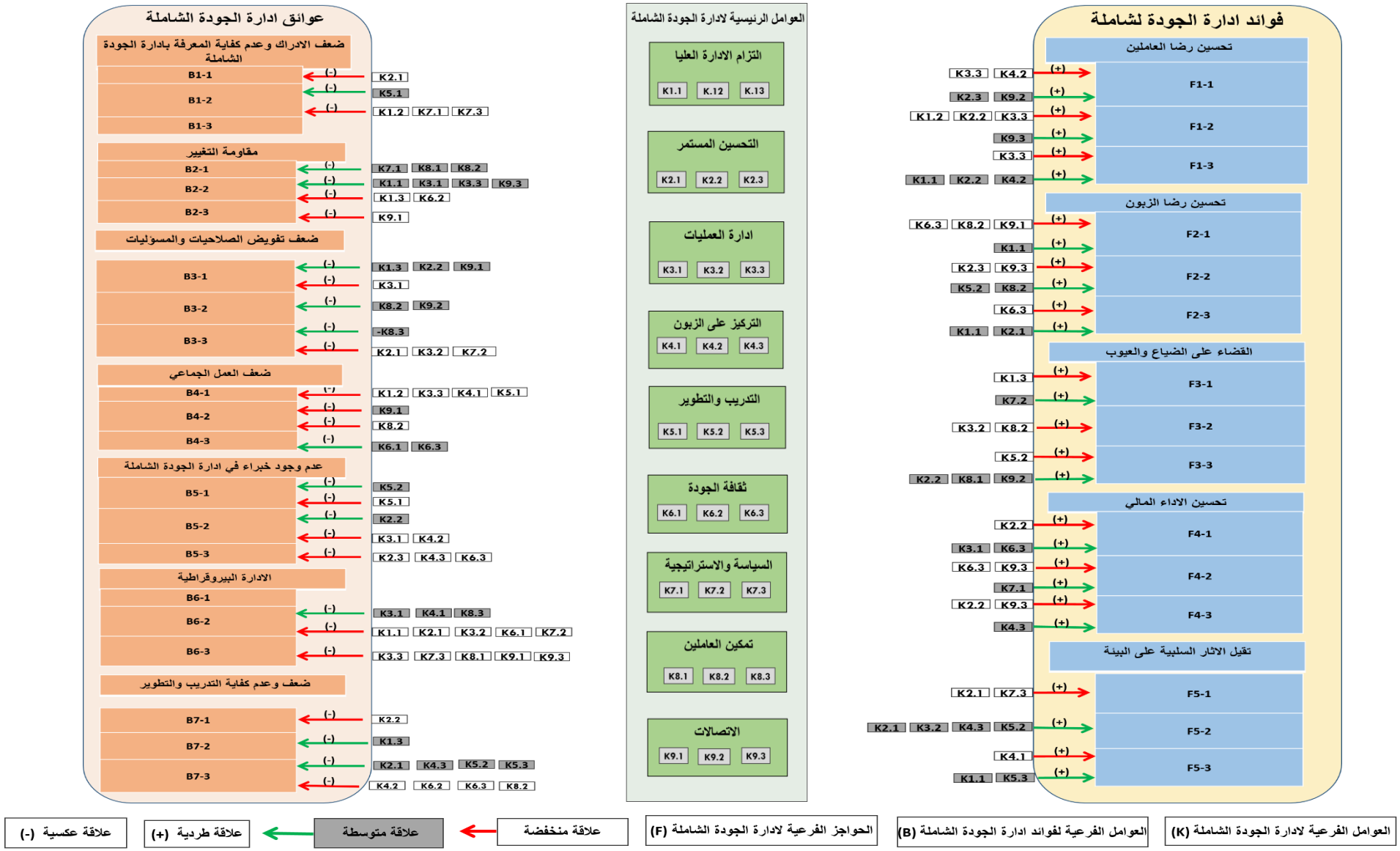
I would like to thank you positively for your collaboration and looking forward to hear from you.

Please note that I attached with this email a covering letter that includes background about the framework and the interviews' questions.

Sincerely,

Abbas Abdulhameed Aletaiby
PhD student at university of Salford, UK

Appendix D: Arabic version for the framework



Appendix E: Related Publications

- Aletaiby, A., Kulatunga, U. (2017, June). The Barriers that affect Total Quality Management Implementation in the Oil companies: the case of Iraqi Drilling Company. *Salford Postgraduate Annual Research Conference.* (pp. 27). University of Salford.

- Aletaiby, A., Kulatunga, U., & Pathirage, C. (2017, September). Key success factors of total quality management and employees performance in Iraqi oil industry. In *13th IPGRC 2017 Full Conference Proceedings* (pp. 668-679). University of Salford.